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MARCH, 1914

WEST RALEIGH, N. C.

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REGISTRAR, A. AND M. COLLEGE,
West Raleigh, N. C.

THE

NORTH CAROLINA COLLEGE

OF

AGRICULTURE AND MECHANIC ARTS

WEST RALEIGH

1913-1914

RALEIGH
EDWARDS & BROUGHTON PRINTING CO., STATE PRINTERS AND BINDERS
1914

Calendar

1914

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COLLEGE CALENDAR.

1914.

Thursday,	July	9.	Entrance examination at each county courthouse, 10 a. m.
Wednesday,	September	2.	Entrance examination at the College, 8:30 a. m.
Thursday,	September	3.	First Term begins; Registration Day.
Thursday,	November	26.	Thanksgiving Day.
Saturday,	December	19.	First Term ends.

1915.

Wednesday,	January	6.	Second Term begins; Registration Day.
Sunday,	May	23.	Baccalaureate Sermon.
Monday,	May	24.	Alumni Day. Annual oration.
Tuesday,	May	25.	Commencement Day.

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Name.	*Postoffice.*	*Term Expires.*
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O. L. CLARK	Clarkton	March 20, 1915.
EVERETT THOMPSON	Elizabeth City	March 20, 1917.
R. H. RICKS	Rocky Mount	March 20, 1917.
O. MAX GARDNER	Shelby	March 20, 1917.
M. L. REED	Asheville	March 20, 1917.
T. T. THORNE	Rocky Mount	March 20, 1917.
C. W. GOLD	Greensboro	March 20, 1919.
T. E. VANN	Como	March 20, 1919.
D. A. TOMPKINS	Charlotte	March 20, 1919.
W. E. DANIEL	Weldon	March 20, 1921.
W. H. RAGAN	High Point	March 20, 1921.
W. B. COOPER	Wilmington	March 20, 1921.
J. P. McRAE	Laurinburg	March 20, 1921.

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H. R. FULTON,
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Marketing.

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W. G. HAYWOOD,
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L. L. BRINKLEY,
Soil Survey.

S. B. SHAW,
Assistant Horticulturist.

[2]W. E. HEARN,
Soils.

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Soil Chemist.

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Assistant Entomologist.

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Assistant Agronomist in Crops.

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A. R. RUSSELL,
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R. Y. WINTERS,
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F. N. McDOWELL,
Assistant Agronomist in Soils.

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Assistant Horticulturist.

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Assistant Director Buncombe and Transylvania Test Farms, Swannanoa.

The Experiment Station is supported and conducted jointly by the College and the State Department of Agriculture. A joint committee from the Board of Trustees of the College and the Board of Agriculture, under agreement entered into by the boards and authorized by an act of the Legislature in 1913, has direct charge of the work of the Station.

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[1] In coöperation with the United States Department of Agriculture, Bureau of Plant Industry.
[2] In coöperation with the United States Department of Agriculture, Bureau of Soils.
[3] In coöperation with the United States Department of Agriculture, Bureau of Animal Industry.
[4] In coöperation with the United States Department of Agriculture, Office of Experiment Stations.

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Cadet Major.

J. R. BUCHANAN.

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E. H. WEATHERSPOON, Captain and Commissary.

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W. D. MARTIN, Quartermaster Sergeant and Color Sergeant.

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L. WHITE, Sergeant.
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GENERAL INFORMATION.

During the years in which North Carolina was emerging from the economic havoc wrought by Civil War and Reconstruction, some farsighted men began to see the necessity of rearing industrially equipped men. They felt keenly the need of competent men to build and direct new industries, and to restore the land which had been impoverished partly by slave labor. They recognized that men capable of doing what was needed would have to be educated in industrial schools and technical colleges.

The first organized body to take steps for the establishment of a State industrial institution in North Carolina was the Watauga Club. This club, composed of bright young men, explained its mission by declaring that it was "an association in the city of Raleigh designed to find out and make known information on practical subjects that will be of public use." In 1885 this club presented to the Legislature a memorial urging that body "to establish an industrial school in North Carolina which shall be a training place for young men who wish to acquire skill in the wealth-producing arts and sciences."

This memorial quickened general interest in the proposed school, and several bills looking to its foundation were introduced in the Legislature of 1885. On March 7th, one of these bills, introduced by Hon. Augustus Leazar, of Iredell County, became a law. This law provided that the Board of Agriculture should seek proposals from the cities and towns of the State, and that the school should be placed in the town offering the most inducements. The Board of Agriculture finally accepted an offer from the city of Raleigh.

Meantime, the ideas of the advocates of the school had been somewhat broadened as to the character of the proposed institution.

These men saw that Congress was about to supplement the original land grant by an additional appropriation for agricultural and mechanical colleges in each State. The originators of the conception then sought the aid of progressive farmers in order to change the school into an Agricultural and Mechanical College. Col. L. L. Polk, the editor of the newly-established Progressive Farmer, threw the weight of his paper heartily into the idea. Meetings were held in various places, and two very large meetings in Raleigh considered the proposition. As a result, the school already provided for was by action of the Legislature of 1887

changed into an Agricultural and Mechanical College, and the Congressional Land Scrip Fund was given the newly formed institution. In addition, the law directed that any surplus from the Department of Agriculture should go into the treasury of the college. Mr. R. Stanhope Pullen, one of Raleigh's most broad-minded citizens, gave the institution eighty-three acres of land in a beautiful suburb of Raleigh. Additional funds were afterwards provided by the Supplemental Morrill Bill passed by Congress in 1890, by the Nelson Bill of 1907, and by State appropriations. The first building was completed in 1889, and the doors of the College were opened for students in October, 1889. Seventy-two students, representing thirty-seven counties, were enrolled the first year. The faculty consisted of six full professors and two assistants. From this small beginning in 1889, the College has grown steadily from year to year.

The College is beautifully located on the extension of Hillsboro Street in the western suburbs of Raleigh, a mile and a quarter from the State Capitol. The site is suitable in all respects.

There is an abundant supply of water from the city mains and from twelve deep wells on the College grounds. The water is analyzed, both chemically and bacteriologically, at regular periods.

The College now owns four hundred and eighty-six acres of land. Fifteen hundred young trees and nine hundred and forty vines are growing in an orchard of twenty-five acres. Seven acres are devoted to truck growing. The campus consists of about thirty acres of rolling land, which is being improved as rapidly as circumstances permit.

BUILDINGS.

The buildings, numbering twenty-seven in all, are grouped as follows: the academic buildings; the social life buildings; and the farm buildings.

I. The academic buildings are as follows:

1. Holladay Hall.—This, the administration building of the College, is of brick with brown stone trimmings. It is 170 feet long by 64 feet deep; part of the building is four stories and the remainder two. The first floor is devoted to the lecture-rooms and laboratories of the Physics Department. The second floor contains the offices of the President, the Dean of the Faculty, the Commandant, Registrar, and the Bursar. In addition, six lecture-rooms are located on this floor. The upper stories are used by students.

2. Patterson Hall.—This is the largest of the Agricultural buildings. It is a three-story buff press-brick structure, with granite

trimmings, and is 204 feet long by 74 deep. The basement floor contains a very commodious dairy with wash-rooms and sterilization chamber. It also contains mailing rooms for bulletins. The second floor provides room for the offices of the Experiment Station, for offices, lecture-rooms, and laboratories for the departments of Agronomy, Horticulture, Soils, and Agricultural Extension. On the third floor are the rooms devoted to the offices, lecture-rooms, and laboratories of the departments of Botany and Plant Pathology, and of Physiology and Veterinary Medicine. This building contains excellently equipped laboratories, and is well lighted and ventilated. Each section of the building was designed for its specific function, and hence admirably meets the requirements of these departments.

3. Animal Husbandry Building.—This new building is a three-story brick structure, and has white brick and cement trimmings. One-half of the first floor is given to the Poultry Department. The other half is devoted to a stock-judging room. The offices, lecture-rooms, and laboratories of the Animal Husbandry Department take up all the second floor. The third floor is assigned to the Department of Entomology and Zoology. In addition to offices and laboratories, this floor contains a photographic room and a museum.

4. Winston Hall.—This is the Civil and Electrical Engineering building. It is built of brick, with reinforced concrete floors, three stories high, including the basement. It consists of a main section, 104 by 58 feet, with two wings, each 91 by 32 feet. The basement contains the laboratories and instrument rooms of the departments of Electrical and Civil Engineering. The main floor has the lecture, recitation, and drafting rooms, and the offices of the same two departments. The second floor contains the lecture and recitation rooms and the laboratories and offices of the Department of Chemistry and the Chemical Department of the State Experiment Station.

5. Mechanical Engineering Building.—A plain substantial two-story brick building furnishes room for the drawing rooms, recitation rooms and offices of a portion of the force in the Mechanical Engineering Department.

6. Textile Building.—This is a two-story brick building, 125 by 75 feet, with a basement. Its construction is similar to that of a cotton mill, and is an illustration of standard construction in this class of buildings. The basement contains the dyeing department, the first floor the looms and warp preparation machinery, and the second floor the carding and spinning machinery.

7. Primrose Hall.—Built originally for the Horticultural Department, this building, one-story and a basement, is now used for classrooms.

8. Central Power Plant.—Heat, light, and power for all the College buildings are furnished from this central station. The boiler plant consists of two 75-horse-power Babcock and Wilcox boilers and two 100-horse-power Atlas Water-tube boilers, with a working steam pressure of 150 pounds. The engine plant embraces a 100-horse-power Skinner engine and a Crocker-Wheeler generator attached; a 100 k. w. DeLaval turbine generator set with exciter; and steam and vacuum pumps for feeding the boilers and maintaining circulation in steam-heating apparatus. The buildings are equipped with Warren-Webster system of heating.

9. Foundry.—Until the new shop building is completed, the foundry is located in the rear section of Pullen Hall. The equipment consists of a 36-inch cupola furnace, a Griffin oil furnace for melting iron; another for brass, and a small crucible furnace for brass melting; a core oven, and benches and hand tools for moulding in the course of exercises, as well as for any repair work required by the College.

10. Shop and Laboratory Building.—All of the shop work, which includes practice in wood working, forging, machine shop and foundry, is given in the new shop building. The Mechanical Engineering laboratory is also in this building. It is one-story and part basement structure of brick, with steel roof trusses and asbestos shingle roof. Steel sash are used throughout, and an unusual amount of light is provided. Part of the basement will be used for a portion of the Mechanical Engineering laboratory and a part for storage of materials of various kinds. The main floor consists of a machine shop 47 by 100 feet, a laboratory room 45 by 100 feet, a wood shop, 50 by 120 feet, a foundry, 35 by 75, and a forge shop, 35 by 75 feet. Provision is also made for demonstration rooms, offices and tool rooms. A wide entrance hall provides space for the exhibition of work done by students and exhibitions showing the different processes in the manufacture of many well known articles. The building is L-shaped, one dimension being 170 feet and the other 195 feet.

The Fire Protection of the College consists of the following equipment: A standpipe and reservoir, hose and hose reels. Hydrants are conveniently located about the grounds, with attached hose nozzles, etc. The buildings are supplied with chemical extinguishers.

II. The social life buildings are as follows:

1. Pullen Hall.—The basement of this large three-story colonial brick building is used as an armory. The first floor gives quarters for a splendidly-lighted reading-room and library and two lecture-rooms. The second story serves as the College auditorium, and seats about one thousand people.

2. Dining Hall.—This building, which will seat seven hundred and fifty students, is 144 by 54 feet. It is trimmed with Indiana limestone and white brick. Attached to this dining hall is a large kitchen, which is supplied with a complete modern outfit of kitchen conveniences and utensils. Serving rooms, storerooms, preparation rooms, and every needful adjunct have been provided.

3. The Y. M. C. A. Building.—The Young Men's Christian Association Building, which was opened January 31, 1913, is a three-story red brick building with Indiana limestone trimming. This building is the home of all the voluntary student activities, and is under the supervision of the Young Men's Christian Association. The basement floor contains a small gymnasium, bowling alleys, a locker-room, shower baths, toilets, and athletic rooms. The main floor contains a large lobby, a reading-room well equipped with daily papers and magazines, a game room, an auditorium, a banquet hall with pantry and kitchen attached, a committee room, a library, a kodak dark-room, four bedrooms for visitors, offices for the College weekly, monthly and annual publications and offices for the Association. The third floor contains two large literary society halls, a cabinet room, a Bible study, and a Mission study room. The building is handsomely equipped with mission furniture throughout.

4. Infirmary.—The College hospital is a two-story brick building, to which two wards have just been added. In addition to these wards there are four separate rooms, three bathrooms, an office for the College physician, and rooms for the head nurse, and a kitchen. The rooms are well ventilated, carefully lighted, and heated by steam. The furniture and equipment are modern and sanitary.

5. Watauga Dormitory.—Rooms for one hundred and twenty students are provided by this three-story brick dormitory. A large bathroom is located in the basement of this building.

6. Nineteen-Eleven Dormitory.—This is the largest and most complete dormitory on the grounds. It is divided into sections by fireproof walls, and each section is practically a separate house. It furnishes rooms for two hundred and forty students. Large and convenient bathrooms are located in the basement of the building.

7. First Dormitory.—This two-story brick dormitory has ten rooms and affords accommodations for twenty students.

8. Second Dormitory.—Built on the same plan as the First Dormitory, this building affords a college home for twenty students.

9. Third Dormitory.—Twenty students also find rooms in this small dormitory.

10. Fourth Dormitory.—This is a three-story, mansard-roofed brick structure, and furnishes rooms for forty-eight students.

Temporary Wooden Dormitories for Some Students.—In the summer of 1913, the College found itself confronted by a serious dilemma. All the rooms in its permanent dormitories were engaged. No appropriation for building a new dormitory was available. Many deserving young men who wanted to fit themselves to do an educated man's work in the industrial world were asking for admittance. Rather than close its doors to these young men whom the State is needing for its material development, the trustees of the College decided to build some cheap wooden dormitories for such earnest young men as were willing to live in them rather than miss their opportunity for a technical education. These buildings are furnished just as the other dormitories are, and are lighted by electricity. While unsightly, they are sanitary and comfortable.

The College will have to use these buildings again this coming year to accommodate its growing numbers. It is hoped that the next Legislature will make provision for permanent dormitories.

III. The farm buildings constitute the third group of College buildings. These are as follows:

1. A large sanitary dairy barn with stalls and feed-rooms for fifty cows. This barn is abundantly aired and lighted, is equipped with James sanitary fixtures, and has cement floors.

2. A barn for the work stock. Stalls for most of the work animals and some overhead storage are supplied by this barn.

3. A storage barn. This barn gives storage for feedstuffs for the dairy, and is also equipped with stalls for the Percheron horses.

4. A fertilizer and implement barn. A commodious barn, which provides room for instruction in mixing fertilizers and storage for the farm implements and machines.

5. The Experiment Station barn. This convenient building is located on the College farm and houses the work stock of the Station.

6. A calf barn. The young stock of the College are provided with

separate stalls and feeding rooms in a comfortable building on the farm site.

7. The foreman's home. A cottage near the barns is occupied by the foreman of the College farm and by the herdsmen.

8. The Horticulturist's home. In order that he may be near his work, the Horticulturist is provided with a home in the center of the orchard.

9. The Poultry Plant, consisting of the home of the instructor in charge, incubator, and brooding house, and pens for all the fowls, is situated just opposite the Horticultural farm, on Hillsboro Road.

THE AGRICULTURAL EXPERIMENT STATION.

The North Carolina Agricultural Experiment Station was established originally as a division of the State Department of Agriculture, in accordance with an act of the General Assembly, ratified March 12, 1877. Its work was greatly promoted by act of Congress of March 2, 1887, known as the Hatch Act, which made a donation to each State for the purpose of investigations in agriculture, and for publishing the same. The funds of the Experiment Station were further supplemented by the act of Congress of March 16, 1906, known as the Adams Act. Under the requirements of the Hatch Act, the Station became a department of the College and was conducted jointly by the College and the Department of Agriculture from 1887 to 1907, with the exception of three years. Under an agreement entered into between the Board of Trustees of the College and the Board of Agriculture in January, 1912, and authorized by act of the Legislature of 1913, the work of the Experiment Station, which covers all of the experimental work in agriculture in the State, is jointly conducted and supported by the College and State Department of Agriculture.

The experimental work in the field in agriculture, horticulture, stock and poultry raising, dairying, etc., is conducted on the College farm and on the test farms of the Department of Agriculture in different parts of the State, and the laboratory investigations are conducted in the laboratories in the two institutions.

The Station is always glad to welcome visitors and to show them the work in progress. The Station conducts a large correspondence with farmers and others concerning agricultural matters. It takes pleasure in receiving and answering questions.

Bulletins relating to general farm matters, embodying the results of the experiments, are sent free to all citizens of the State who request them. A request addressed to Agricultural Experi-

ment Station, West Raleigh, will bring these publications in answer to letters.

THE PURPOSE OF THE COLLEGE.

The College is an institution where young men of character, energy, and ambition may fit themselves for useful and honorable work in many lines of industry in which training and skill are requisite to success. It is intended to train farmers, mechanics, engineers, architects, draughtsmen, machinists, electricians, miners, metallurgists, chemists, dyers, mill workers, manufacturers, stock raisers, fruit growers, truckers, and dairymen, by giving them not only a liberal, but also a special education, with such manual and technical training as will qualify them for their future work.

It offers practical and technical education in Agriculture, Horticulture, Animal Industry, Civil Engineering, Mechanical Engineering, Electrical Engineering, Mining Engineering, Chemistry, Dyeing, Textile Industry, and Agriculture. It also offers practical training in Carpentry, Woodturning, Blacksmithing, Machinist's work, Mill work, Boiler tending, Engine tending, Dynamo tending and Installation, Electric-light Wiring, Armature Winding, and other subjects relating to practical electricity.

Although the leading purpose of the College is to furnish technical and practical instruction, yet other subjects essential to a liberal education are not omitted. Thorough instruction is given in English, Mathematics, Political Economy, Physics, Chemistry, Botany, Zoology, Physiology, and Geology.

The College is not a place for young men who desire merely a general education without manual or technical training, nor for lads lacking in physical development, mental capacity, or moral fiber, nor for those who are unable or unwilling to observe regularity, system, and order in their daily work.

WHAT THE COLLEGE EXPECTS OF ITS STUDENTS.

The College does not have many rules. It expects that its students will live rightly for their own sakes and for the sake of the State that is educating them. The fundamental law of the College is this: Always and everywhere, be a gentleman.

A record is kept of every student. If it is apparent from this record that a student is not studying or that his conduct is not meeting the requirements of the College, such student will be required to withdraw. Scandalous, vicious, or immoral conduct will necessitate an immediate dismissal.

Students attend this College, of course, to fit themselves for a technical business life. They are therefore expected to be business-like in their habits; to be prompt in their attendance and regular at chapel, classes, shops, drills, inspections, and all other duties. To prepare themselves for their daily work, students are expected to observe in their own rooms the regular morning and evening hours of study, and to be absent from College only at the regularly specified periods. These periods are as follows: For Juniors, Friday, Saturday, and Sunday nights; for Sophomores, Saturday and Sunday nights; for Freshmen, Sunday nights. Saturday and Sunday afternoons are liberty afternoons.

Students are expected to keep their rooms neat and sanitary; to refrain from disturbing one another by noise in the buildings or on the grounds—in short, to conduct themselves in their College home with the same courtesy, self-respect, and propriety that they do in their own homes.

Visiting poolrooms, leaving College after 11 o'clock at night, continued cigarette smoking, wilful destruction of College property, drinking, immorality, gambling in all forms, hazing of any kind, disrespect to members of the Faculty or officers of the College, any conduct unbecoming a gentleman—these offenses it is expected that a student's self-respect will lead him to abstain from, and should any student be found guilty of them he will be excluded from College.

REPORTS AND SCHOLARSHIP.

Regular reports of scholarship and conduct are sent to parents and guardians at the end of each term. Special reports are made whenever necessary. Students who are persistently neglectful of duty, or manifestly unable to do the work required, will be discharged at any time. The Faculty will require any student to withdraw whenever it is plain that his stay in the institution is not profitable to himself nor to the College.

PRIZES.

The North Carolina State Fair Association offers a prize of $5 to the student preparing the best essay on the Live-stock Exhibit at the State Fair.

A gold medal is awarded to the Senior speaker who makes the best oration on Commencement Day.

The National Association of Cotton Manufacturers offers annually a medal to the student in the Textile Department who has the highest proficiency in his work.

RELIGIOUS INFLUENCES.

All students are required to attend chapel exercises in Pullen Auditorium each morning. These services are conducted by the President, by some member of the Faculty, or by some visiting minister or layman.

Each student is expected to attend religious service in Raleigh on Sunday morning at the church of his choice. The students are always welcomed in the Sabbath schools of Raleigh, and a large number of them attend these services.

THE YOUNG MEN'S CHRISTIAN ASSOCIATION.

The Young Men's Christian Association is a voluntary organization among the students for the purpose of centralizing and directing the moral and religious life of the student body. The work is under the direction of a General Secretary, who is employed to give his entire time to the work, and of the following student officers: President, vice president, corresponding and recording secretaries, and treasurer. Active assistance is also given by an Advisory Committee, which includes three members of the Faculty and six prominent business men in Raleigh. The president and treasurer of the Association are *ex officio* members of this committee.

Membership is open to all College students of good moral character. Only members of evangelical churches may become active members.

A hand-book, giving general information about the College, is published each spring and sent to prospective students, with a personal letter of welcome from the officers of the Association.

A large number of men are trained each year in active Christian service through membership on the following standing committees, all of which are trained by the General Secretary in their particular work: Bible Study Committee, which has charge of the organization of voluntary Bible Study classes among the students, and in this way seeks to reach all of the non-Christian element of the student body; Religious Meetings Committee, which provides speakers and arranges programs for the weekly meetings of the Association; Mission Study Committee, which provides for Mission Study among the students; Membership Committee, which seeks to enlist students as members of the Young Men's Christian Association; Social Committee, which provides means of social entertainment and diversion; and Finance Committee. Each committee is held responsible for its part of the Association activities.

The Association is supported by gifts from the Board of Trustees, the Faculty, and citizens of the State, and by its regular membership fees. Although membership is voluntary, it is desired that all students should apply for membership, and thereby align themselves with an organization which will assist them in leading an upright life while in college.

The Association occupies its own building on the campus, which was erected at a cost of $41,000.

Parents or students wishing to obtain further information about the work of the Association, may do so by addressing the General Secretary, West Raleigh, N. C.

ATHLETICS.

The Athletic Association is organized by the student body to promote physical health and manly spirit through athletic sports. Under the direction of the Athletic Committee of the Faculty, it promotes practice in baseball, basketball, football, track athletics, etc. The Association employs a director who devotes all his time to the interests of this department.

The Athletic Park is situated in the center of the College buildings. It is provided with a grandstand and uncovered seats, and meets the needs of the various athletic teams.

LIBRARY AND READING-ROOMS.

The College Library occupies the first story of Pullen Hall. The reading-room is supplied regularly with about one hundred and fifty magazines and journals of various kinds, and yearly additions are being made to this number. The library contains about seven thousand five hundred volumes. There are also reference libraries in the different departments. The library is kept open from 9 a. m. to 6 p. m. The Librarian is always present to assist students in finding desired information.

The Olivia Raney Library in Raleigh, containing now about twelve thousand four hundred volumes, is free to students, and they have the privilege of borrowing books from it.

Students are also allowed to consult books in the **State Library.**

STATE MUSEUM.

Students have free access to the large collections of the State Museum. These collections furnish most excellent opportunities for studies in Geology, Mineralogy, Mining, Forestry, and Natural History.

COLLEGE SOCIETIES.

Such college organizations are encouraged as tend to form good character, to develop manly physical vigor, and to promote literary, scientific, and technical research and training.

The Biag Society is composed of those students who have made the best record in biological and agricultural subjects. The membership is limited to twelve. The society meets monthly for the discussion of biological and agricultural questions.

Farmers' Progressive Association.—The students in the Winter Course in Agriculture meet every Wednesday night during the winter term for a discussion of practical problems. The meetings are conducted in the manner of a Farmers' Institute, and give training in conducting farmers' meetings, in *ex tempore* speaking on agricultural questions, and in the writing and reading of reports on various farm operations.

The Rural Science Club meets semimonthly for the discussion of agricultural subjects, review of current agricultural publications, and reports on personal experiments and the work of the College farm and Experiment Station.

The Biological Club meets semimonthly for the discussion of biological subjects in their relation to practical agriculture. Students here present results of their own investigations and observations and reviews of the more important current publications, particularly those from the United States Department of Agriculture and the State Experiment Stations.

The Tompkins Textile Society.—The purpose of this society is to discuss textile problems and other subjects in connection with the textile industry. Meetings are held fortnightly, and great interest is taken in them by the textile students.

The Mechanical Engineering Society meets every week for the discussion of engineering subjects. The society is composed of Seniors and Juniors taking the Mechanical Engineering Course. Its work has proved very beneficial to its members.

Electrical Engineering Society.—A student branch of the American Institute of Electrical Engineers was organized at the College several years ago. It holds weekly meetings for the reading and discussion of papers. At convenient intervals the society makes trips for inspecting interesting electrical installations. From time to time addresses are made by visiting engineers.

Berzelius Society meets fortnightly for discussion of chemical topics, and reporting upon the leading articles in the chemical journals.

The Vorwaerts Verein (Forward Society) is a society for the promotion of interest in the study of German. Weekly meetings are held, at which literary programs are carried out in German, giving its members practice in expressing themselves in that language. Membership is open to students and members of the Faculty who have acquired sufficient knowledge to understand simple conversation in German.

The Pullen and Leazar Literary Societies afford excellent opportunities for practice in declamation, debate, composition, and parliamentary law, as well as opportunities for social pleasure and recreation.

The Alumni Association meets each year on the Monday preceding Commencement Day, transacts its annual business, hears the Alumni oration, and attends the annual Alumni banquet. This association purposes raising funds to erect an Alumni building at the College.

REQUISITES FOR ADMISSION.

Each applicant for admission must be at least sixteen years of age and must bring a certificate of good moral character from the school last attended.

To the Four-year Courses.

Admission to the Freshman Class of all four-year courses is by the unit system. A unit is defined as a subject pursued in schools of approved grade for five periods a week throughout the year, each period being at least forty-five minutes in length. Each applicant, selecting from the subjects named in the lists below, must, on examination, make eight units, the credit on any one subject not to exceed the value indicated. Of these eight units the following are required for all four-year courses:

Required Units.

SUBJECT.	UNITS.
Algebra	1½
English	2
United States History	1
Total units in required subjects	4½
Geometry (Engineering Courses and Chemistry)	1

The 1½ units required in Algebra must cover the subject to quadratic equations.

Of the 2 units required in English, 1 unit must be in grammar and composition and 1 unit in literature.

A full unit will be allowed for any one science only when the subject has been given with laboratory practice.

Additional Units.

In addition to the four and one-half units in required subjects given in above list, applicants wishing to take the Agricultural Course, the Veterinary Course, or the Textile Course must offer three and a half units selected from the list below. Applicants wishing to enter an Engineering course or the Chemical course must offer, in addition to the above required units, ½ unit in geometry and three units selected from the list below. The ½ unit in geometry must include the first three books of Plane Geometry:

Elective Units.

SUBJECT.	UNITS.
Agriculture or Farm Practice	1
Botany	½ or 1
Bookkeeping	½
Chemistry	½ or 1
Civics	½
Drawing (Freehand or Mechanical)	½
English History	1
French, German or Spanish	1
Latin	2
Manual Training	½
Mill Practice	½
Physics	½ or 1
Physiology	½
Zoology	½ or 1

Admission on Certificate.—Applicants for admission to the Freshman Class, who present certified statements from principals of high schools or academies of approved standing that the applicant has satisfactorily completed the eight units required by the College,

will be admitted without further examination. These certificates must be submitted to the Dean of the College for approval.

To the Two-year Courses.—Applicants for admission to the two-year courses in Agriculture, Mechanic Arts, and Textile Industry will be examined on Arithmetic complete, English Grammar and Composition, and American History.

To the One-year Course in Agriculture.—Applicants for admission to the One-year Course in Agriculture will be required to pass on Arithmetic through decimal fractions, on English Grammar and on United States History.

To the Winter Courses.—No entrance examination is required of candidates for admission to the winter courses. No one under eighteen years of age will be admitted to a winter course.

ENTRANCE EXAMINATIONS AT COUNTY SEAT AND AT COLLEGE.

Entrance examinations will be held by the County Superintendents of Instruction in each courthouse in the State at 10 o'clock a. m. the second Thursday in July of each year. The date for 1914 is July 9. These examinations will save the expense of a trip to Raleigh in case the candidate should fail or in case there should not be room enough for him in the College. Entrance examinations will be held also at the College at 8:30 o'clock a. m. on the Wednesday preceding the opening day. The examinations begin with English at 8:30 a. m., in Room 18, Holladay Hall, followed by Mathematics at 10, and History at 2, in the same room. The date for 1914 is September 2.

ADMISSION WITHOUT EXAMINATION.

The following persons will be admitted without examination:

1. Applicants for admission to winter courses, if over eighteen years of age.
2. School teachers, holding teachers' certificates, if the holders are sufficiently familiar with Algebra and Geometry.
3. Graduates of those high schools and academies whose certificates are accepted by the Faculty of this College.

ADVANCED CREDIT.

Students who have attended colleges of approved standing will be allowed credit for work done upon the presentation of proper certificates to the Dean, who, with the heads of the departments concerned, will determine their value.

SESSION.

The College session lasts nine months, and opens annually the first Thursday in September and closes the last Tuesday in May, with a vacation of about two weeks at Christmas.

EXPENSE.

The total average college expense of a Freshman student is $235.

The total average college expense of a Freshman student having a scholarship is $190.

These amounts include cost of board, tuition, lodging, fuel and lights, fees and deposits, books, uniform and cap, drawing instruments. They do not include allowance for clothing, other than for uniform and cap, nor for spending money and contingencies.

Allowance for clothing, spending money, and contingencies should be kept within reasonable bounds. The allowances which parents make their sons for contingencies and spending money, it is suggested, should be kept small; for small allowances frequently take away temptation to unwise living.

DETAILED INFORMATION.

The largest payment is made in September. On entrance, a Freshman student will need $85 to meet all of his various payments for the first month. But of this amount a payment of $22.50 for tuition may be deferred, if desired, to the first of November. This will reduce the first, or entrance, payment to $62.50. This amount includes payment to the College of $45 (this may vary one or two dollars according to the course of instruction); deposit with the dealer for uniform and cap of $5, and $12.50 for the purchase of books and incidentals. In the case of day students, or students rooming and boarding out of College, tuition will be paid on entrance.

Board is $11 per month, payable in advance on the first day of each calendar month from September through to May. Board for less time than one month is charged for at the rate of 40 cents a day. Refunds for board will be made on the basis of these charges.

Students withdrawing from College within two weeks from date of entrance will be refunded all money paid by them to the College Bursar except charges for board and lodging during the time they are in College. In special cases the right is reserved to modify or entirely revoke this rule.

Refunds to students withdrawing later than two weeks from date

of entrance will be made in proportion to the length of time they are in college. The right in special cases to modify or to revoke this rule is reserved.

EXPENSE BY MONTHS.

The following is a statement of the College expenses of a Freshman student by months, for Civil, Electrical, and Mechanical Engineering divisions:

SEPTEMBER: Room rent, fuel and lights, $15; incidental fee, $2; medical and hospital fee, $3; lecture fee, $1; library fee, $1; furniture fee, $1; physical culture fee, $3; military equipment deposit, $5; mechanical and physical laboratory fees, $3; board for September, $11; a total of $45 to be paid to the College. Tuition for one-half session, $22.50, may be paid at this time, which will make a total of $67.50 to be paid to the College. In addition, there is required by the merchant a deposit of $5 for uniform and cap when the measure of the student is taken; and about $10 to $15 is required to buy books and drawing instruments, and for incidentals.

An Agricultural Freshman pays $1.50 more than the above. A Textile Freshman pays $1 less than the above. Chemical Freshmen pay $1 more than the above.

OCTOBER: Board, $11, and balance to merchant for uniform and cap, $15.

NOVEMBER: Board, $11; tuition, if it was not paid in September, $22.50.

DECEMBER: Board, $11.

JANUARY: Tuition, $22.50; lodging and fuel and lights, $15; medical and hospital fee, $3; furniture fee, $1; physical culture fee, $3; board $11. A total of $55.50.

FEBRUARY: Board, $11.

MARCH: Board, $11.

APRIL: Board, $11.

MAY: Board, $11.

The amount of the September or entrance payment for students varies slightly with the class, the course, and the division. This variation is caused by the additional collection of fees and deposits for laboratory work and for supplies. The amount of these fees and deposits is given in the table below, for all classes and courses.

COURSES.	Long Courses.				Short Courses.		
	Seniors.	Juniors.	Sophomores.	Freshmen.	Two-year—Second.	Two-year—First.	One-year.
Students in Agriculture—							
Agronomy Division	$ 3.00	$11.00	$ 9.00	$ 4.00	$6.00	$1.00	$ 6.50
Animal Husbandry Division	2.50	11.00	9.00	4.00	.....	.....	.....
Horticulture Division	3.00	10.00	9.00	4.00	.....	.....	.....
Normal Division	3.00	10.00	9.00	4.00	.....	.....	.....
Veterinary Division	13.50	16.00	9.00	4.00	13.00	10.00	.....
Students in Civil Engineering	1.00	1.00	5.00	3.00	.....	.....	.....
Students in Mechanical Engineering	2.00	3.00	6.00	3.00	2.00	2.00	2.00
Students in Electrical Engineering	2.00	4.00	6.00	3.00	.....	.....	.....
Students in Chemistry	13.00	13.00	6.50	4.00	.....	.....	.....
Students in Textile Industry	8.00	7.00	7.00	3.00	8.00	5.00	5.00
Students in Textile Dyeing	10.00	10.00	7.00	3.00	.....	.....	.....
Students in Normal Course for Teachers	.....	.....	.....	.....	8.00	5.50	7.50

Note.—The College Bursar is forbidden by the Trustees to give credit.

All unused deposits are refunded to the student at the end of the session or upon his withdrawal from College. If he has overdrawn his deposit he is required to pay the amount of the overdraft.

If the student has a scholarship, he does not pay tuition.

Students entering after September will pay on entrance all the items enumerated under "September," less a credit in part for tuition and room rent.

WHAT A STUDENT NEEDS FOR HIS ROOM.

The College rooms are supplied with necessary furniture. Each student, however, should bring with him two pairs of blankets, two pairs of sheets, one pillow and two cases, and two bedspreads for a single bed.

SCHOLARSHIPS CARRYING FREE TUITION.

1. Regular Scholarships.—When the College was chartered the Legislature required the Trustees to admit, free of tuition, one hundred and twenty young men. The only conditions attached to

these scholarships are that they shall go to young men (1) who are unable to pay for all of their education, and (2) who are of excellent moral character. As far as possible these appointments are distributed among the different counties. Appointments are made by the President of the College after inquiries as to the needs and character of applicants and after a written recommendation from a member of the Legislature from the applicant's county. Certificates of inability to pay have to be made by the applicant and his parents. Blanks are furnished for this purpose.

2. Agricultural Scholarships.—The Legislature of 1913 authorized the College Trustees to give a limited number of agricultural scholarships to students who agree to teach for two years in an agricultural school, or to serve in an agricultural experiment station, or to farm in the State for two years after graduation. The same conditions as to financial inability and moral worth go with these scholarships as go with the regular ones.

3. Southern Railway Scholarships: William Wilson Finley Foundation.—The Southern Railway, under the above foundation, offers four scholarships, each valued at $75 a year, to needy and worthy young men who live in counties traversed by any line of the Southern Railway, and who wish to study agriculture.

4. Norfolk Southern Railway Scholarships.—Two scholarships, each valued at $75, are given by the Norfolk Southern Railway to deserving young men who reside in counties on the lines of this railway. These are awarded only to agricultural students.

5. The John L. Roper Lumber Company Scholarships.—This company gives yearly two scholarships that cover an agricultural student's tuition. Like the other scholarships these are intended for young men of good character and of needy circumstances.

SELF-HELP.

Some students who are alert and energetic frequently earn part of their expenses in College. Some of the agricultural students find work at odd hours on the farm, in the orchard, in the barn, in the dairy. Some students act as agents for laundries, for furnishing-houses, for pressing clubs. The College employs a few students for the dining-room and for other purposes. A student's ability to help himself will depend largely on his own power to find work and to hold it after he finds it. It must, however, be remembered that the duties of the classroom take most of a student's time. College duties begin at 8 a. m. and do not end until 4 p. m., and then drill comes from 4 p. m. to 5 p. m.: hence hours for remunerative work are very limited.

STUDENT LOAN FUND.

The Alumni Association of the College established in the year 1900 a small fund to be lent to needy students of talent and character. This has been augmented from various sources and now amounts to $4,663.70. The loans are made at 6 per cent, and good security is required. Sufficient time for repayment is given to enable the student to earn the money himself. The amount lent to each student is limited. The purpose is to help young men who are willing to help themselves and who cannot find sufficient employment while in college to meet all their necessary expenses.

Contributions are solicited for this fund from students, alumni, and friends of education generally. The fund is administered by the College Bursar, under the direction of the President.

TIME OF REGISTRATION.

All students are required to register within twenty-four hours after reaching Raleigh. A failure to comply with this rule may lead the Faculty to decline to allow an applicant to register.

BOARD AND LODGING.

All students are required to board in the College dining hall or in approved boarding-houses near the College, and to room in the College dormitories. An abundant supply of plain, nourishing food, with as large a variety as possible, is furnished absolutely at cost. The charge at present is $11 per month, payable in advance.

Rooms in the College dormitories are supplied with electric lights, steam heat, and all necessary furniture, except sheets, blankets, pillow-cases, pillows, bedspreads, and towels, which each student must furnish for himself. The charge for lodging is by the month, and there is no reduction in case of withdrawal.

DRILL.

In return for the Morrill Fund of the United States Government, the College is under contract to require its students to drill at least three times each week, and an Army officer is detailed to conduct the drills. No student will be excused from drill unless the College Physician, after examination, deems him unfit for military duty.

UNIFORM.

The College uniform must be worn by all students when they are on military duty. It must be bought at the College from the regular

contractor. The uniform is of strong gray cloth and with proper care should last two or three years.

No uniform overcoat is required, but every student should bring a comfortable overcoat with him.

CARE OF THE SICK.

Every effort is made to protect the health of young men in the College. Regular inspections of the entire institution are made once a year, or oftener, by the State Board of Health. Similar inspections are made monthly by the College Physician.

Each student has a regular routine of daily life, including abundant physical exercise in the shops and on the drill grounds.

In case of sickness, a student is taken immediately to the College Infirmary, where he receives medical attention and careful nursing.

The College Physician visits the Infirmary daily at 3 o'clock p. m., and in cases of serious illness as frequently as may be required.

A trained nurse has charge of the Infirmary at all times.

VACCINATION.

By direction of the Trustees, no young man will be registered unless he has been successfully vaccinated within the past two years. The College greatly prefers that all applicants for admission should be vaccinated at home, and that a certificate of successful vaccination within the past two years be brought from the family physician. In case this cannot be done, the College Physician will vaccinate applicants before they are registered at the College. A blank form to be filled by the home physician will be mailed on application. It will save a great deal of time and trouble, therefore, to be vaccinated before applying for registration. In this way applicants will avoid the inconvenience and discomfort resulting from vaccination while at College. The size of scar resulting from a previous vaccination is not proof that revaccination is not needed.

TYPHOID INOCULATION.

Believing that students may be safeguarded from typhoid fever by inoculation against this disease to which young people are peculiarly susceptible, the College offers this preventive free of charge, and urges, but does not require, all its new students to take the treatment. Parents are requested to join the College in recommending that their sons be inoculated here or to have them inoculated at home.

COURSES OF INSTRUCTION.

The College offers courses of instruction in the following subjects:

I. Agriculture.

(*a*) **Four-year course** including Agronomy, Soils, and Drainage, and Agricultural Chemistry; Animal Husbandry, Dairying, and Poultry Husbandry; Horticulture and Botany; Veterinary Science; Normal Course.

(*b*) **Course in Veterinary Medicine,** two years.

(*c*) **Two-year Course in Agriculture.**

(*d*) **One-year Course in Agriculture.**

(*e*) **Four-weeks Course in Agriculture and Dairying,** beginning at the opening of college in January.

These courses are described on pages 41-91.

II. Engineering, Mechanic Arts, and Chemistry.

(*a*) **Four-year Course in Civil Engineering.** Pages 93-97.

(*b*) **Four-year Course in Mechanical Engineering.** Pages 98-108.

(*c*) **Four-year Course in Mechanic Arts.** Pages 109-113.

(*d*) **Four-year Course in Electrical Engineering.** Pages 114-121.

(*e*) **Four-year Course in Chemistry.** Pages 122-131.

III. Textile Industry.

(*a*) **Four-year Textile Course.** Pages 132-141.

(*b*) **Four-year Dyeing Course.** Pages 141-150.

(*c*) **Two-year Textile Course.** Pages 151-155.

IV. Normal Courses for the training of teachers in indutsrial subjects.

(*a*) **Two-year Course in Agriulture.** Pages 156-158.

(*b*) **One-year Course in Agriculture.** Pages 156-158.

(*c*) **Summer School for Teachers.** A four-weeks' course in the sciences underlying modern agriculture, and in their practical application. See page 159.

V. Graduate Courses.

Extending over one or more years and leading to advanced degrees. These are intended for students who have completed the

four-year course and who desire further instruction and training in special subjects. Page 160.

VI. Degrees.

The four-year courses offer a combination of practice and theoretical work, about half the time being devoted to lectures and recitations and the other half to work in the shops, laboratories, drawing-rooms, greenhouses, dairies, poultry yards, fields, and mills. They are intended to furnish both technical and liberal education. The degree of Bachelor of Science is conferred upon a graduate of the four-year courses in Agriculture, in Chemistry, and in Dyeing; and the degree of Bachelor of Engineering is conferred upon a graduate of the four-year Engineering course, or the four-year Textile course.

The short courses include nearly all of the practical work of the four-year courses with less theoretical instruction. They are intended for students who desire chiefly manual training. They do not lead to a degree.

AGRICULTURAL COURSES.

a. The Four-year Course in Agriculture.
b. Course in Veterinary Medicine, two years.
c. The Two-year Course in Agriculture.
d. The One-year Course in Agriculture.
e. The Four-weeks Winter Course in Agriculture.

Aim and Scope.—The aim of the Agricultural Courses is to train young men in both the science and the practice of their vocation. It is believed that every young man preparing to farm needs a double education—one that is practical, to fit him for his profession; another that is cultural, to fit him to live.

In order to meet the necessities of all young men who desire instruction in Agriculture, the College offers five distinct courses:

a. The Four-year Course aims to give a training that is thoroughly practical as well as scientific in Agriculture and its various branches, such as Stock-raising, Dairying, Poultry Raisng, and Horticulture. The strictly technical portion constitutes about one-third of the work. Of the remaining two-thirds of the course, more than one-half is prescribed in the sciences. This is done for the training and information they give, and to prepare for the technical work of the course. Because of this, and because the subject-matter and the methods of the technical portion lie so fully within the domain of science, the course is essentially scientific rather than literary. Yet the College is mindful of the fundamental character of such studies as Mathematics, English Literature, Physics, etc., and they are not neglected in this course. **Full description of the Four-year Course begins on page 43.**

b. The Course in Veterinary Medicine has been established at this College as the result of a rapidly increasing demand for qualified veterinarians. The purpose of the course is to give a broad and thorough basic training in the fundamentals of veterinary medicine, along with abundance of practical work in the clinics, laboratories, judging and dissecting rooms.

The work of these first two years is correlated with that of the junior and senior years at a number of the better veterinary colleges, in which colleges subject credit may be obtained for work taken here. **For outline and description of course, see page 72.**

c. The Two-year Course in Agriculture is offered to meet the

necessities of young men who wish to prepare themselves in the art rather than in the science and art of agriculture. This course does not lead to graduation, but is designed to help young men better fit themselves by a year or two of practical work for their chosen sphere of industrial activity in the garden, orchard, on the farm, and in the production of animals and animal products. **The Two-year Course is described on page 77.**

d. The One-year Course in Agriculture is designed to meet the needs of young men who are ambitious to excel in the vocation of farming, and who feel the need of better preparation for their life-work. The time which can be devoted to study is often limited; hence the topics in this course have been arranged in such a manner that the student is enabled to get the greatest amount of practical information in the time at his disposal.

Education and training pay on the farm as elsewhere. The young man who prepares himself for his life's work will make more rapid strides and will gain success much quicker than the one who does not.

The College has numerous calls for young men to manage farms and estates. It is able to fill only a limited number of them. Young men who have any talent along this line can fit themselves for this work by taking this course. **The One-year Course is described on page 82.**

e. The Four-weeks Winter Course in Agriculture is established to meet the needs of those who can spend only the winter at the College. The important and practical subjects of Agriculture and Horticulture and Stock-raising receive principal attention. **The Four-weeks Course is described on page 85.**

Methods of instruction.—Instruction is by laboratory work, supplemented by text-books, lectures, and reference readings, which are assigned from standard volumes and periodicals.

The equipment for the technical work of the Agricultural course is rapidly increasing. The Dairy Department is equipped with a modern creamery for pasteurizing, separating, creaming, and churning, and for investigation in dairy bacteriology.

The department makes free use of the fields, orchards, and gardens, in which the Agricultural Experiment Station conducts experiments in methods of culture, in effects of several practices on yield and on fertility, and in varieties of fruit, of vegetables, and of forage crops. The methods employed and the results obtained are freely used for instruction.

DEPARTMENT OF AGRICULTURE.

I (a). Four-year Course in Agriculture.

This course leads to the degree of Bachelor of Science.

Freshman Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Mathematics, 110, 111	5	5
English, 120, 121	3	3
Botany, 30	3	3
Agriculture, 1	3	0
Animal Husbandry, 40	0	3
Chemistry, 90	3	3
Drawing, 152, and Wood Shop, 150	2	2
Drill, 153	3	3
Totals	22	22

Sophomore Year.

Farm Equipment, 2	0	2
English, 122, 123	3	3
Chemistry, 91	3	3
Zoology, 80	0	3
Physiology, 60	0	3
Botany, 31	3	0
Dairying, 48	3	0
Vegetable Gardening, 21	0	3
Plant Propagation, 20	3	0
Physics, 100	3	3
Geology	2	0
Tactics, 154	1	1
Drill, 153	3	3
Totals	24	24

AGRONOMY DIVISION.

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Agronomy, 3 and 4, Cereals	4	4
Soils, 10	3	3
Bacteriology, 33	0	3
Animal Husbandry, 41, 42, 43	3	3
Poultry, 51	3	0
Entomology, 85	2	2
Chemistry, 92, 93	3	3
English, 124	3	3
Drill, 153	3	3
Totals	24	24

Senior Year.

Agronomy (5), Farm Crops	3	3
Agronomy, 6	0	3
Farm Management, 7	3	0
Drainage, 12, and Fertilizers, 11	2	2
Practical Pomology, 22, and Plant Breeding, 25	3	3
Plant Diseases, 32	2	2
Chemistry, 94	2	2
Economics, 130, 131	3	3
Elective	4	4
Totals	22	22

Elective.

English, 125, 126	2	2
Pruning and Orchard Protection, 24	0	3
Poultry, 52	3	0
Animal Husbandry, 44	3	3
Modern Language	3	3
Soils, Advanced, 13	3	3

HORTICULTURAL DIVISION.

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Animal Husbandry, 43	0	3
Bacteriology, 33	0	3
Chemistry, 92, 93	3	3
English, 124	3	3
Entomology, 84	3	0
Practical Pomology, 22	3	0
Greenhouse Construction, 23	3	0
Pruning and Orchard Protection, 24	0	3
Plant Breeding, 25	0	3
Poultry, 51	3	0
Soils	3	3
Drill, 153	3	3
Totals	24	24

Senior Year.

Agronomy, 3 and 4, Cereals	4	4
Drainage, 12, and Fertilizers, 11	2	2
Botany, Plant Diseases, 32	2	2
Horticultural Entomology, 87	2	2
Greenhouse Management, 26	3	0
Systematic Pomology, 27	3	0
Landscape Gardening, 28	0	3
Horticulture—Elective, 29	0	3
Economics, 130, 131	3	3
Elective	3	3
Totals	22	22

Elective.

Farm Management, 7	3	0
Agronomy (5) Crops	0	3
German, 130, or French, 131	3	3
Chemistry (Agricultural), 94	2	2
English, 125, 126	2	2

ANIMAL HUSBANDRY DIVISION.

Junior Year.

Subjects.	Periods a Week	
	1st Term.	2d Term.
English, 124	3	3
Soils, 10	3	3
Veterinary Medicine, 61 *a*, *b*	3	3
Poultry, 51	3	0
Bacteriology, 33	0	3
Animal Husbandry, 41, 42, 43	3	3
Zoology, 81	3	0
Entomology, 86	0	3
Chemistry, 92, 93	3	3
Drill, 53	3	3
Totals	24	24

Senior Year.

Animal Husbandry, 44	3	3
Animal Husbandry, 45	3	3
Economics, 130, 131	3	3
Agronomy, 3 and 4, Cereals	4	4
Agronomy, 5, Farm Crops	0	3
Farm Management, 7	3	0
Dairy Bacteriology, 35	3	0
Advanced Dairying, 49	0	3
Elective	3	3
Totals	22	22

Elective.

Animal Husbandry, 46, 47	2	2
Veterinary Medicine, 62 *a*, *b*	3	3
Advanced Physiology	3	0
Chemistry, 94	2	2
English, 125, 126	2	2
Poultry, 52	0	3
Economics, 132, 133, 134		

VETERINARY DIVISION.

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Anatomy and Clinics, 64, 66	3	3
Histology, 63	2	2
Materia Medica, 65	0	3
English, 124	3	3
Agronomy, 3 and 4, Cereals	4	4
Poultry, 51	3	0
Bacteriology, 33	0	3
Animal Husbandry, 41, 42, 43	3	3
Soils, 10	3	0
Drill, 153	3	3
Totals	24	24

Senior Year.

Anatomy and Clinics, 67, 72	3	3
Physiology, 68	3	3
Pathology and Bacteriology, 69	2	2
Pharmacy, 70	3	0
Diagnosis, 71	0	3
Animal Husbandry, 44	3	3
Agronomy, 7 and 5	3	3
Chemistry, 94	2	2
Dairy Bacteriology, 35	3	0
Zoology, 82	0	3
Totals	22	22

NORMAL DIVISION.

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
English, 124	3	3
Chemistry, 92, 93	2	2
Soils	3	3
Agronomy, 3 and 4, Cereals	4	4
Entomology, 84	3	0
Economics, 130, 131	3	3
Bacteriology, 33	0	3
Animal Husbandry, 41, 42, 43	3	3
Drill, 153	3	3
Totals	24	24

Senior Year.

Drainage, 12, and Fertilizers, 11	2	2
Plant Diseases, 32	2	2
Entomology, 87	2	2
Plant Breeding, 25	0	3
Poultry, 51	3	0
Agronomy, 7 and 5	3	3
Elective	10	10
Totals	22	22

Elective.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
English, 125, 126	2	2
Practical Pomology, 22	3	0
Landscape Gardening, 28	0	3
Chemistry, 94	2	2
German, 130, or French, 131	3	3
Economics, 132, 133, 134	3	3
Bacteriology, 34	3	3
Zoology, 83	3	3
Soils, 13	3	3
Animal Husbandry, 44	3	3
Veterinary Medicine, 62*b*	0	3
Advanced Physiology, 62*a*	3	0

AGRICULTURAL EQUIPMENT.

In addition to Patterson Hall and the Animal Husbandry Building, with their classrooms, laboratories, dairy, stock-judging room and offices, the College possesses the following equipment for instruction in Agriculture:

The farm includes four hundred and eighty-five acres, with two hundred and sixty acres under cultivation; a two-story sixteen-stall horse and storage barn; a fifty-stall dairy barn; a large combination horse, implement, and storage barn; a large implement, fertilizer and grain barn; and a calf barn; silos with capacity for four hundred tons of silage; a No. 17 Ohio feed and ensilage cutter operated by an electric motor, and implements and machinery necessary for up-to-date farming.

The live stock consists of the necessary Percheron mares and mules, a Percheron stallion, a herd of dairy cattle, and pure-bred swine. Breeding stock is sold as a part of the farm products.

The poultry plant has a number of breeding pens with necessary yards, the houses being of two different types well suited to poultry-keeping in North Carolina; an incubator room with three makes of incubators; a brooder house partially heated by hot water,

and several makes of indoor brooders. Ten or fifteen varieties of poultry are kept, and eggs and breeding fowls are sold to the public.

The horticultural equipment consists of about thirty acres in tree fruit, nuts, vineyard, berries, and vegetables, in appropriate assortment of classes and varieties for demonstration and instruction. These afford means for work in seed selection, bud studies, propagation, budding, grafting, transplanting, pruning, spraying, and variety study.

The dairy equipment is complete and thoroughly modern. The laboratory occupies about four thousand feet of floor space in Patterson Hall, and is equipped for instruction in farm dairying, retailing milk, creamery practice, cheese and butter making, milk testing and pasteurizing. The dairy equipment is modern and complete.

The North Carolina Experiment Station is a department of the College, and its close association with the School of Agriculture gives exceptional opportunities to the Agricultural students for instruction and observation covering experiments and research in agronomy, chemistry, horticulture, vegetable pathology, plant diseases, bacteriology, dairy and animal husbandry, poultry husbandry, veterinary science, and entomology.

AGRONOMY.

Equipment.

The class rooms, laboratory, offices, storage, supply and fertilizer rooms are in Patterson Hall. The Department has the necessary accessories for present-day instruction in agronomy, and additions are made as needed. The Department operates the College farm of about one hundred and forty acres. A large horse barn with corn bins, harness rooms, and hay mows, accommodates a dozen mules and Percheron mares. Another large three-story barn accommodates seeds, supplies, tools, implements and machinery for operating the farm and giving practical farm work to students. A portion of the farm is set aside for the exclusive use of students in securing practical farm experience with very nearly all of the farm crops of the State. This practice work includes soil preparation, mixing and applying fertilizers, cultivating and harvesting, crop breeding and laboratory study of the crops grown by the students. The field, laboratory and class instruction are the three parts of the student's work which together make up the course of instruction in Agronomy.

Subjects of Instruction.

1. Agriculture.—This course is introductory to agriculture in its broader sense, and is popular rather than technical. The simpler principles and practices of the farm in relation to soils, plants, tillage, fertilizers and the conservation of fertility are among the subjects first taken up. This is followed by a brief discussion of the crops of the State, seed selection, rotation, etc. The remainder of the course is devoted to a rather comprehensive study of the corn plant, including soils, fertilizer and rotations suitable to this crop; seed selection and corn judging, uses, etc. Three periods, first term. Required of Freshmen. Professor NEWMAN.

2. Farm Equipment.—Selecting, laying out and equipping farms; locating, planning and constructing farm buildings; fences, gates, bridges, roads; tools, implements and machinery; miscellaneous appliances; farm power; water supply and sanitation. Two periods second term. Required of Sophomores. Professor NEWMAN.

3. Agronomy: (a) Cereals.—The history, production, uses and improvement of corn, wheat, oats and other cereals adapted to the State. Two periods through Junior year for Agronomy, Veterinary and Normal Divisions; through Senior year for other divisions. Mr. HODSON.

4. Agronomy: (b) Cereals.—This is a Laboratory and Field Practice Course, and parallels the Agronomy 3 course described above. One period through the year is devoted to laboratory and class work and one period through the year to field practice. A portion of the college farm is set aside for the growing of various farm crops by the students, that they may become familiar with crops and the methods of their culture. Each student is required to keep a complete record of all operations, including date of seeding, amount of seed, preparation of soil, fertilization, and other details involved in crop production, beginning with seeding, and extending through harvesting. Required of Juniors in Agronomy, of Normal and Veterinary divisions, and of Seniors in Horticulture and Animal Husbandry divisions. Mr. HODSON.

5. Agronomy: Farm Crops.—This course is a continuation of the Junior Courses 3 and 4, and includes crops other than cereals. Cotton; tobacco; legumes; hay; forage and pastures; silage production; sweet potato; peanuts, etc., are taken up in the order given. All of the first term is devoted to cotton and tobacco. Rotation, the development and conservation of fertility in connection with the use of these crops on the farm or their sale. Application of the principles of breeding to cotton, tobacco, corn and other crops.

Each student is required to present a monograph on some crop or some subject of close relationship to important crops of the State. Three periods through the year. Required of Seniors in the Agronomy Division. The second term is required of the Seniors in the Animal Husbandry Division, in the Veterinary Division, and in the Normal Division. Professor NEWMAN.

6. Agronomy.—This course is for students specializing in Agronomy. Each student is assigned a subject or group of related subjects for study, and the result of his investigations is reported in bulletin form. Experimental methods and results of experiments are studied. Experiments are planned and the results worked up and conclusions drawn. Three periods second term. Required of Seniors in Agronomy Division. Professor NEWMAN and Mr. HODSON.

7. Farm Management.—Types of farming and their relation to soil, climate, labor, transportation, population, capital and land values; operating expenses; systems of land tenure, farm organization; size of farms; location and arrangement of buildings; roadways, fences, water supply, orchard, garden, etc.; factors governing nature and amount of equipment; financial accounts; farm records; diversification; rotation from a business point of view; cropping systems; relationship of animal and plant production; maintenance of fertility; standard of living; schools; churches. Three periods, first term. Required of Seniors in Agronomy, Animal Husbandry, Normal and Veterinary Divisions. Professor NEWMAN.

SOILS.

Equipment.

The Soils Department has a large new laboratory in Patterson Hall furnished with solid oak desks and lockers so arranged as to accommodate a large number of students in general soils work and to allow individual locker space with plenty of working room for each student. These desks and lockers, with other tables and soil chests, were designed and made to order for this laboratory, and hence are arranged to give the greatest convenience and the most complete use of the room that is possible.

The apparatus is all of the latest and most approved models, giving greater utility and accuracy, combined with simplicity, than would be possible with any other.

In addition to the laboratory facilities, the department makes use of the College farm for its practical work in drainage, terracing, fertilization, cultivation, and study of soil types. A series of plats for soil demonstration work has been arranged which is expected

to illustrate many features of practical importance in the maintenance of soil fertility.

Subjects of Instruction.

10. Soils.—Attention is given to the forces that decompose and disintegrate rock and to the influence of these forces and of the various kinds of rock on the resulting soil. The physical characters, such as water-holding capacity, capillarity, effect of mulches, temperature and weight, and the modification of these characters by tillage, cropping, and all operations of practical soil management, are discussed and exemplified in the classroom, laboratory, and field. Some attention is given to the classification of soils in the United States, and especially in North Carolina. The physical, chemical, and bacteriological soil conditions are discussed in relation to each other and to their effects on soil fertility. Systems of maintaining the permanent productiveness of soils are studied. Three periods throughout the year. Required of all Juniors. Veterinary Division, first term only. Prerequisite, Chemistry 90 and 91 and Physics 100. Professor SHERWIN.

11. Fertilizers.—Fertilizing as a factor in soil management and economical crop production. Sources, composition, availability, and value of various commercial and farm fertilizers. Comparative value of the elements of plant food in different carriers as shown by their productive capacity. Two periods, second term. Required of Seniors. Prerequisite, Soils 10. Professor SHERWIN.

12. Farm Drainage.—This includes both principles and practice of drainage. The student becomes familiar with the use of various drainage instruments and implements, as the course involves considerable field work in laying out systems of under-drains. Different methods of leveling and determining grade are discussed and practiced.

Determination of size of tile needed, depth and method of laying, influence of depth of tile and distance apart of drains on withdrawal of water from the soil, and all of these as influenced by texture and character of the soil, are considered. Drainage by means of open ditches and surface drainage by means of terraces will also be given attention. Two periods a week, first term. Required of Seniors in Agronomy, Normal and Horticulture. Prerequisite, Soils 10. Professor SHERWIN.

13. Advanced Soils.—In this course the student will be guided in the study of any line of Soils work he may choose, either along practical or scientific lines. Laboratory and field work will be

given. Considerable reference will be made to Experiment Station literature with the aim of acquainting the student with the literature on the subject, and with the methods of investigation used. Three periods a week throughout the year. Elective for Seniors. Prerequisite, Soils 10. Professor SHERWIN.

HORTICULTURE.

Equipment.

The Department of Horticulture is provided with facilities for instruction which are singularly efficient in many respects, and additions which are now being made, together with others which are expected in the near future, will equip it with unexcelled means for teaching horticulture in all its branches. At present the offices and class rooms are located in Patterson Hall. New laboratory space is being provided by the erection of a forty-one foot section of a brick and slate structure to be known as the Service Building, and one attached iron frame greenhouse covering a space thirty by one hundred feet. The Service Building, which is twenty-five feet wide, will eventually be lengthened to seventy feet, and to it will be attached another greenhouse of the same size as the one now being built. The Department is also charged with the management of about twenty-five acres of land devoted to fruits and vegetables of all kinds, and of the College campus, covering about fifty-five acres, which is in the process of development in accordance with artistic and scientific principles of landscape design.

The laboratory space is constantly in use as a workroom for classes in all subjects, and is well supplied with tools and necessary pieces of apparatus. The greenhouse, hotbeds, and cold-frames will provide room and facilities not only for growing early vegetables and flowering plants, but also for the forcing of both vegetables and flowers under glass. Here the student will be allotted a definite space and be required to put into practice the knowledge gained in the class room by growing the crops there treated. Practice work is an essential adjunct of every course. Student work under competent supervision is employed in all parts of the grounds.

The Horticultural Grounds, which contain about twenty-five acres, provide exceptional facilities for additional training in vegetable gardening, and for instruction in pomology and plant breeding. Here are located the "Student" vegetable gardens, which the students are required to plan, plant, and manage. Here, also, are to be found an orchard each of apples, pears, pecans and figs; a vineyard each of "bunch" and muscadine grapes; and smaller plant-

ings of plums, persimmons, quinces, cherries, raspberries, blackberries, dewberries, strawberries. The remaining and intermediate spaces are used for growing vegetables on a larger scale; the maintenance of a nursery for fruit and ornamental plants; and the ornamental planting about the residence situated near the middle of the grounds, which as a whole are designed to serve as a model of a small fruit farm economically and tastefully arranged.

Subjects of Instruction.

20. Plant Propagation.—A course in the multiplication of plants. Seedage, separation and division, cuttage, layerage, and graftage are considered in turn. The most commonly used methods of propagating vegetables, fruit and ornamental plants are emphasized. Three periods, first term; recitation, two hours; practice, two hours per week. Required of Sophomores. Mr. STODDARD.

21. Vegetable Gardening.—A course dealing with the principles of vegetable growing and the methods employed in the Home, Truck and Market gardening areas. Special attention is given to the Home Garden, and the Trucking Industry in North Carolina. Consideration is given to sites, soils, manures and fertilizers, seed sowing, transplanting, and the culture, harvesting, storing and marketing of all important vegetables. Three periods, second term; recitation, two hours; practice, two hours per week. Required of Sophomores. Prerequisite, Plant Propagation 20. Mr. STODDARD.

22. Practical Pomology.—A general course in fruit growing. Among the subjects considered are the choice of locations, the selection of sites and soils; the choice of varieties; the preparation of the land; the planning, planting, fertilization and management of orchards; and the harvesting, storing and marketing of fruits. Practice consists in the inspection and examination of sites and soils, the making of orchard plans; laying out orchards; handling and planting trees; and the exercise of modern methods of grading, packing, and marketing fruits. Three periods, first term; recitation, two hours, practice two hours per week. Required of Juniors in Horticultural Division and of Seniors in Agronomy Division. Prerequisite, Plant Propagation 20. Professor PILLSBURY.

23. Greenhouse Construction.—A course of study of the different forms of greenhouses and glass structures used for growing plants, and their adaptation to different purposes. Practice work consists in the drawing of plans, estimating cost of building and heating. These periods, first term; recitation, one hour; practice, four hours

per week. Required of Juniors in Horticultural Division. Prerequisite, Vegetable Gardening 21. Professor PILLSBURY.

24. Pruning and Orchard Protection.—A course in the training of fruit plants and their protection from insect pests and fungous diseases. Treatment of special diseases and methods of protection from frost are also considered. A continuation of Practical Pomology. Three periods, second term; recitation, two hours; practice, two hours per week. Required of Juniors in Horticultural division. Prerequisite, Practical Pomology, 22. Mr. STODDARD.

25. Plant Breeding.—A course in the study of the principles of plant breeding, and practice of the most approved methods of pollination, crossing and selection for the origination and improvement of varieties of plants. Mendelism and biometrical measurements constitute an important part of the course. Three periods, second term; recitation, two hours; practice, two hours per week. Required of Juniors in Horticultural and Seniors in Agronomy and Normal divisions. Prerequisite, Plant Propagation 20. Professor PILLSBURY.

26. Greenhouse Management.—A course which treats of the principles and practice of growing plants under glass. It includes the forcing of both vegetable and flowering plants. A given area is assigned to each student and he is required to plan, plant, and manage it to a successful conclusion. Three periods, first term; recitation, two hours; practice, two hours per week. Required of Seniors in Horticultural Division. Prerequisite, Vegetable Gardening 21. Mr. STODDARD.

27. Systematic Pomology.—A course which combines both a study of the origin and evolution of our native fruits, and practice in description, identification, classification, and judging of varieties. Three periods, first term; recitation, two hours; practice, two hours per week. Required of Seniors in Horticultural division. Prerequisites, Practical Pomology 22 and Plant Breeding 25. Professor PILLSBURY.

28. Landscape Gardening.—A course in the study of the principles of the arts of design, and their application to the design of landscapes. The principal styles of composition are considered and compared as to history, development and adaptation. Practice consists of a study of landscape materials, in mapping, designing plans, and making specifications, and in the execution of important parts of the practical work of improving grounds. Three periods, second term; recitation, two hours; practice, two hours per week. Required of Seniors in Horticultural Division. Prerequisites, Plant Propagation 20. Professor PILLSBURY.

29. Horticulture, Elective.—A course designed to give the student an opportunity to elect and pursue the study of some special line of horticultural investigation. Three periods, second term; hours to be arranged. Open to Seniors in Horticulture only. Professor PILLSBURY.

BOTANY.

(Botany, Plant Pathology and Bacteriology.)

Equipment.

Three commodious laboratories and a large recitation and lecture room are devoted to Botany, Bacteriology, and Plant Pathology. A research-room is provided for the use of advanced students. There are also offices for the professor and instructors, and a store-room, a dark room, and an incubator-room. All rooms are supplied with electricity, gas, and hot and cold water, and the bacteriological laboratory is, in addition, provided with steam under 80 pounds pressure for purposes of sterilizing. The laboratories are supplied with wall-cases, shelves, herbarium cases, specimen boxes, sterilizers, incubators, microscopes, microtomes, a liberal supply of glassware, and such small utensils as are needed in the prosecution of the work. The incubator-room is fire-proof, and is provided with a Weisnegg regulator capable of keeping the temperature of the room practically invariable. The excellent herbarium has been mounted, and is now accessible for class use. There is an extensive collection of seeds, both of weeds and cultivated plants, and the most important plant diseases are represented by herbarium and alcoholic specimens.

Subjects of Instruction.

30. Elementary Botany.—Recitation, laboratory work and reference reading regarding the algæ, fungi, ferns, and seed plants. Morphology is emphasized, and the broad principles of nutrition, reproduction, growth, sex, adaptation, and evolution are illustrated. Particular consideration is given to the fungi and seed plants. The student's knowledge is made his own through laboratory work and simple independent investigations. Three periods. Required of Freshmen. Prerequisites for other courses in the Department. Professor FULTON, Mr. YOUNG.

31. Plant Physiology.—Recitation, lecture, and laboratory study of such fundamental physiological processes of plants as are of particular interest to students of agriculture. Absorption, nutrition, growth, and reproduction are considered. Three periods, first term. Required of Sophomores. Professor FULTON, Mr. YOUNG.

32. Plant Diseases (Advanced).—A study of representative crop diseases. This course is intended to prepare the student for practical control or further study of plant diseases. Two periods. Required of Seniors in Horticultural, Agronomy and Normal Divisions. Professor FULTON.

33. Bacteriology.—Lectures and laboratory work on the physiology, morphology, and economy of bacteria, with especial reference to home sanitation and disinfection, and to the relation of bacteria to disease in plants and animals and to agricultural practice. The student becomes familiar in the laboratory with methods of culture and investigation in bacteriology. Three periods, second term. Required of Juniors. Mr. COOPER.

34. Bacteriology (Advanced).—A course designed to extend knowledge in special fields and to perfect the technique in bacteriology for those who desire to do original work in this subject. Work may be elected in sewage bacteriology, dairy bacteriology, bacterial plant diseases, or in bacteriology of manure, water, soil, or air. The course is flexible, and will be made to fit the requirements of those students electing it. Three periods. Elective for Seniors. Prerequisite, Botany 33. Professor FULTON, Mr. COOPER.

35. Dairy Bacteriology.—Lecture, text-book and laboratory course covering the more important facts in the relation of bacteria to dairying. The laboratory course consists in demonstrating and supplementing the lecture course. Three periods, first term. Required of Seniors in Animal Husbandry and Veterinary Divisions. Prerequisite, Botany 33. Professor FULTON and Mr. COOPER.

ANIMAL HUSBANDRY.

Equipment.

The Animal Husbandry Department now occupies the Animal Husbandry Building, which was completed during the summer of 1912. This building was constructed at a cost of twenty-five thousand dollars, and is up-to-date in every way. The department has offices, classrooms, record-room, and stock-judging room, furnishing excellent facilities for students in Animal Husbandry.

The live-stock equipment has been added to materially during the past year. A fine registered Percheron stallion and several high-grade mares are kept for horse work. These are all used for farm work and breeding purposes as well as for class work. The dairy herd now consists of seventy-five head, of which about forty are cows in milk. Three leading breeds are represented, consisting of twelve high-grade Holstein cows and a registered bull, six

pure-bred Ayrshire cows and a bull, twelve pure-bred Jerseys and a bull, the remainder being grade Jerseys and Guernseys. This gives splendid material for class work in the study of dairy breeds.

A herd of pure-bred swine has been established, consisting of the following breeds: Berkshire, Duroc Jersey, and Chester White. Good individuals have been selected and enough animals will be maintained to give the student a splendid opportunity for swine work.

The product of the dairy is sold as milk, butter, and cream to the College Dining Hall and to city customers.

Subjects of Instruction.

40. Breeds of Live Stock.—A study of the origin, history, characteristics, adaptability, and popularity of the breeds of live stock. Every opportunity will be taken advantage of to teach the student the merits of the various breeds, and, when possible, classes of the breeds will be judged. Three periods, second term. Required of Freshmen. Professor McNUTT and Mr. SALISBURY.

41. Live-Stock Judging.—A study of the score-card and its use. A comparison of the score-cards for the various breeds, and practical scoring. Methods and rules in judging the various classes of live stock. In practical judging the student will be required to give oral or written reasons to sustain his placing of the animals. Three periods, first term. Required of Juniors, except Horticulture. Professor McNUTT.

42. Stock Feeding.—A study of the composition of feeds and the food requirements of the domestic animals. The student will be required to become familiar with the fundamental principles so that he can compound suitable rations for the different classes of live stock. Especial emphasis will be laid upon practical problems in feeding. Three periods, second term, except in Horticulture. Required of Juniors. Text-book, Henry's *Feeds and Feeding*. Professor McNUTT.

43. Animal Breeding.—A study of the fundamental laws and principles underlying the science of breeding, and the application of these laws in breeding the different species of domestic animals. Three periods, second term, beginning about March 1. Required of Juniors. Professor McNUTT.

44. Live-stock Management.—A study of the feeding, breeding, care and management of the various classes of farm animals, including the management of breeding stock as well as work stock. Three lectures a week throughout the year. Required of Animal Husbandry Seniors. Professor McNUTT.

45. Live-stock Markets.—Lectures covering the market classes and grades of horses, cattle, sheep and swine will be given so as to make it possible for the students to become familiar with the markets and their demands. Three periods throughout the Senior year. Required of Animal Husbandry Seniors. Professor McNUTT.

46. Advanced Course in Stock Judging.—Lectures covering the subjects will be given and the students will be required to judge as many classes of stock as possible. Two periods. Elective for Animal Husbandry Seniors. First term. Professor McNUTT and Mr. SALISBURY.

47. Market Classes and Grades of Meat.—A study of the market classes and grades of beef, pork and mutton; also slaughtering, marketing, and meat cutting. The relative value of the cuts from the various parts of the carcass will be given due consideration. Two periods, second term. Elective for Seniors. Professor McNUTT.

DAIRYING.

Dairy Equipment.—The dairy laboratory occupies about four thousand square feet of floor space in the basement of Patterson Hall, besides the locker-rooms, the toilet, and bath rooms on the same floor.

The main dairy laboratory is thirty-six by fifty-seven feet, and is fitted throughout with modern equipment suited to giving up-to-date instruction in farm dairying, retailing milk, and creamery practice. The equipment for the farm dairying consists, in the main, of De Laval, Sharples, Empire, National, United States, and Simplex hand separators; swing and barrel hand churns of different sizes; cream vats, hand and power butter-workers, aerators and coolers, milk-testers, and other articles useful in doing farm dairy work.

Milk-testing, which plays such an important part in all phases of dairy work, receives a great deal of attention. Several sizes of hand machines and a twenty-four bottle power tester are used in this work, together with all equipment necessary for testing milk, cream, butter, cheese, skim-milk, and whey. The lactometer is also used to determine milk solids and specific gravity.

The equipment for giving instruction in commercial dairying consists of milk pump, receiving vat, tempering vat, turbine separator, continuous pasteurizer, combined churn and butter-worker, bottling outfit, and bottle-washing and sterilizing outfit.

Subjects of Instruction.

48. Dairying.—Text-book and lecture course covering the fundamental principles of modern dairying. The laboratory work consists of practice in the use of modern dairy equipment. Each student is required to become familiar with the construction, care, and operation of the leading makes of cream separators. Proficiency is required of the student in testing and standardizing milk and cream, and in cream-ripening, churning, working, packing, and scoring butter. Three periods, first term. Required of Sophomores. Mr. SALISBURY.

49. Advanced Dairying.—A study of the practical problems in dairy management. Dairy barn construction and arrangement of buildings and lots. The different phases of dairying will be studied from an economic standpoint. Also a study of the production of sanitary and certified milk. Dairy inspection with practice in scoring dairies. Milk inspection for adulterants and preservatives, and butter scoring. Three periods, second term. Required of Seniors in Animal Husbandry. Professor MCNUTT and Mr. SALISBURY.

POULTRY HUSBANDRY.

The poultry plant has a number of breeding pens with necessary yards, the houses being of the types well suited to poultry keeping in North Carolina; an incubator room with three different makes of incubators; and a brooder house, which can be heated by hot water when necessary. Indoor brooders of several different makes are used, including fireless and heated types.

The following varieties of poultry are kept: Barred, Buff, and White Plymouth Rock; White and Columbian Wyandotte; S. C. Rhode Island Red; S. C. White and Brown Leghorn; S. C. Black Minorca; and Buff and White Orpington; Indian Runner and Muscovy Ducks and Bronze Turkeys.

51. Poultry Husbandry.—Classification and study of the breeds of domestic poultry; breeding, feeding, and management; construction and location of poultry houses; production and marketing of eggs; production, killing, and marketing of poultry; natural and artificial incubation and brooding. Three periods, first term. For Juniors. Mr. TAYLOR.

52. Poultry Husbandry.—Theory and practice of judging fowls by comparison; comparison of different systems of poultry keeping; artificial incubation and brooding. Capons and caponizing. Three periods, second term. For Seniors. Required only of Seniors in Normal Division. Mr. TAYLOR.

VETERINARY SCIENCE.

(Anatomy, Physiology, and Veterinary Medicine.)

For Course in Veterinary Medicine, see page 72.

Equipment.

For instruction in the above subjects, the department is provided with offices, lecture-rooms, laboratories, pharmacy-room (for drugs and surgical instruments), and dissecting-room.

The offices contain the usual office fixtures, besides a library of most of the standard works on veterinary medicine in English.

For use in classroom and laboratory, the department is supplied with mounted skeletons of man, of horse, and of cow; also numerous specimens of tumors, tuberculous organs, bony lesions of spavins, splints, ring bones, and side bones. Besides the collection illustrating diseased tissues, the department has a large collection of parasites which infest domestic animals.

The laboratories are provided with wall cases, work tables and desks, washing sinks, hot and cold water, gas burners, and electric lights. The laboratory for special work has microtome (for cutting sections of tissue for study with microscope), glass slides, stains, and the various materials required for making temporary and permanent mounts of healthy and diseased tissues. The larger laboratory is supplied with the necessary equipment for conducting exercises in physiology.

In the pharmacy-room are samples of a large number of drugs used in comparative medicine, and a more or less complete set of surgical instruments, including an operating table for small animals, and casting harness and slings for larger animals.

Subjects of Instruction.

60. Animal Physiology.—Mounted skeletons of man, of the horse, and of the cow will be used in a brief study of elementary anatomy of man and domestic animals. This will be followed by a comparative study of some of the functions of the various systems and organs of the body, such as the skeleton, muscles, nerves, organs of special sense, digestion, circulation, respiration, skin, etc. The subject will be covered by lectures, recitations, demonstrations and laboratory exercises. Three periods, second term. Required of Sophomores. Doctor HANDLEY.

61. Veterinary Anatomy and Physiology.—Text-books, supplemented by lectures and illustrated by charts, models, skeletons, sketches and dissections will be used. Anatomy and physiology are

fundamentals in any system of medicine as well as essential to a comprehensive study of live stock. Special attention will be given to the systems and organs of locomotion, digestion, respiration and reproduction. Three periods, first term. Required of Juniors in Animal Husbandry Division. Professor ROBERTS.

61. (b) Veterinary Hygiene, Sanitation and Practice.—Preventive medicine is the goal of the human physician, the veterinarian and the sanitarian. Therefore to sanitarians a rather comprehensive knowledge of hygiene and sanitation is necessary. Considerable time will be devoted to a study of the causes of disease and the means of avoiding them through hygienic and sanitary measures. Some few diseases will be discussed more or less in detail, and a weekly clinic will be held at the hospital. Three periods, second term. Required of Juniors in Animal Husbandry Division. Professor ROBERTS and Doctor KOONCE.

62. (a) Veterinary Science—Advanced Physiology.—Appreciating the value of many of the interesting phenomena in physiology, opportunity is given to consider those especially applicable for the animal husbandman and the teacher. Three periods, first term. Elective for Seniors in Animal Husbandry and Normal Divisions. Professor ROBERTS and Doctor HANDLEY.

62. (b) Veterinary Science; Infectious Diseases.—This course while correlating with the Junior work and Senior physiology will not require these courses as prerequisites. Attention will be given to those infectious diseases that are common in the South and especially those that occur both in man and animals. Their cause, symptoms and control will be discussed. Three periods, second term. Elective for Seniors in Animal Husbandry and Normal Divisions. Professor ROBERTS and Doctor HANDLEY.

For agricultural students intending to pursue a veterinary course, opportunity will be given during their Junior and Senior years to elect subjects required in the Freshman and Sophomore years of such a course.

63. Histology.—A misroscopical study of the tissues of the body, treating of the cell as the unit of structure, and of its functions; also of tissues, their classification, and their relation to the structure of organs. From dissections, clinics, and proximity to slaughter-house, abundance of histological material of various animals is received. Two periods. Required of Juniors in Veterinary Division. Doctor HANDLEY.

64. Veterinary Anatomy.—This subject will deal with the study of the skeleton, including bones and joints, and of muscles and digestive organs. A complete dissection of the muscles of the horse will

be made. Three periods. Required of Juniors in the Veterinary Division. Doctor HANDLEY.

65. Materia Medica.—A study of the drugs used in comparative medicine will treat of their classification, composition, physiological actions, and doses. Three periods, second term. Required of Juniors in Veterinary Division. Professor ROBERTS.

66. Clinics.—An essential part of the training of students in comparative medicine consists in seeing for himself animals suffering with the various diseases discussed in classroom. To this end abundant clinic material is available in the veterinary hospitals in Raleigh. Clinic periods will be used for dissection from November to March. Three periods. Required of Juniors in Veterinary Division. Professor ROBERTS, Doctors KOONCE and HANDLEY.

67. Veterinary Anatomy.—A continuation of course 64. A study the digestive, respiratory, circulatory, and nervous systems will be made, with complete dissection of each in the horse. Three periods. Required of Seniors in Veterinary Division. Professor ROBERTS.

68. Veterinary Physiology.—A comparative study of the bodily functions of the various domestic animals is made, with special reference to digestion, respiration, circulation, and secretion. Three periods. Required of Seniors in Veterinary Division. Doctor HANDLEY.

69. Pathology and Bacteriology.—A large number of specimens of diseased tissue already present in the museum and opportunity for collecting others from clinics and abattoirs insure plenty of material to demonstrate the various macroscopical and microscopical changes in organs and tissues due to disease. Especial attention is paid to the isolation and study of the pathogenic bacteria from the various organs of diseased animals. Two periods. Required of Seniors in Veterinary Division. Doctor HANDLEY.

70. Materia Medica and Pharmacy.—Course 65, as described above, will be continued, including prescription writing and laboratory work in the preparation, compounding and dispensing of medicines. Three periods, first term. Required of Seniors in Veterinary Division. Professor ROBERTS.

71. Clinical Diagnosis.—This subject is taught for the purpose of studying the methods for the examination of animals to detect and diagnose the various diseases affecting them. Three periods, second term. Required of Seniors in Veterinary Division. Professor ROBERTS and Doctor KOONCE.

72. Clinics.—These will be given, as in the year previous, and will give the student opportunity of putting into practice the in-

formation he has gained from study of clinical diagnosis. In connection with the clinics autopsies are frequent held, giving the students excellent opportunities to observe changes in the body structures resulting from disease. Clinic periods will be used for dissection from November to March. Three periods. Required of Seniors in Veterinary Division. Professor ROBERTS, Doctors KOONCE and SIMMS.

ZOOLOGY AND ENTOMOLOGY.

Equipment.

The Department of Zoology and Entomology occupies the second floor of the new Animal Husbandry Building. This provides ample space for offices, laboratories, classroom, museum, library and photographic room.

The student's laboratory is a large, exceptionally well lighted room which is provided with the usual accessories of a zoological laboratory. The laboratory tables are furnished with "Kewaunee" and "Albarene" tops, and provide ample working space and individual lockers for each student.

The classroom is furnished with a Leitz projection apparatus and with a large series of charts illustrating the principal classes of animals.

The museum contains a rapidly growing synoptic collection illustrating the principal groups of animals found in North Carolina.

The library contains some of the more important books on zoological and entomological subjects and receives the current periodicals dealing with these subjects.

Subjects of Instruction.

80. Elementary Zoology.—An elementary study of all forms of animals, with special reference to the more important economic groups, is given by text-book, library, laboratory and field work, with supplementary lectures. This course is designed to give the student a general knowledge of the animal kingdom, and to lay the foundation for the special work which follows. Three periods, second term. Required of Sophomores. Professor METCALF.

81. Advanced Zoology.—This course is designed to give the student a working knowledge of the groups of animals which have furnished the principal domestic animals; with something of the history, anatomy and development of the vertebrates, together with a study of the parasites of domestic animals. Three periods, first term. Required of Juniors in Animal Husbandry. Professor METCALF.

82. Vertebrate Zoology.—This course will cover the comparative anatomy and embryology of the principal groups of vertebrates, together with a discussion of the origin, development and evolution of the vertebrates. Three periods, second term. Required of Seniors and Second Year Men. Veterinary Division. Professor METCALF.

83. Zoology—Elective.—A course designed especially for students who wish to review the fundamental principles of zoology, either as a basis for teaching or for investigational work. Two or three periods, first and second terms. Elective in Normal Division. Professor METCALF.

84. Elementary Entomology.—The elements of insect anatomy, classification and development as a foundation for economic entomology is covered by text-book, lectures and laboratory work. Three periods, first term. Required of Juniors in Horticultural and Normal Divisions. Professor METCALF.

85. Elementary Economic Entomology.—Injurious insects of field and truck crops, garden, orchard, barn and household are studied from the standpoint of their life histories and control. Text-book, laboratory and field work. Two periods, first and second terms. Required of Juniors in Agronomy. Professor METCALF.

86. Economic Entomology.—The insect enemies of domestic animals, grains and forage crops are studied from the standpoint of structure, development and control. Lecture, laboratory and field work. Three periods, second term. Required of Juniors in Animal Husbandry Division. Professor METCALF.

87. Horticultural Entomology.—Systematic study of the injurious insects of orchards, shade and ornamental plants, together with a study of the insect enemies of the principal truck and garden crops from the standpoint of their life histories and control. Two periods, first and second terms. Required of Seniors in Horticultural and Normal Divisions. Professor METCALF.

CHEMISTRY.

90. Inorganic Chemistry.—McPherson and Henderson's *General Chemistry*. The common elements and their principal compounds are studied, together with some of the fundamental principles of the science. The lectures are illustrated by experiments and the exhibition of specimens. Laboratory work accompanies the classroom work. Three periods. Required of Freshmen. Professor WITHERS, Doctor NOWELL, Mr. FETZER and Mr. SHERWOOD.

91. Analytical Chemistry.—A. A. Noyes' *Qualitative Analysis*. After the student has learned to separate and identify elements in

unknowns, special attention is given to tests of special interest to agricultural students. Three periods. Required of Sophomores. Mr. FETZER.

92. Analytical Chemistry.—Lincoln and Walton's *Qualitative Analysis.* Gravimetric and volumetric determination of elements in fertilizers, feeding stuffs and other classes of substance of importance to agricultural students. Three periods, half year. Doctor WILLIAMS.

93. Organic Chemistry.—Lectures and laboratory work. Remsen's *Organic Chemistry.* Three periods, half year. Required of Juniors. Doctor NOWELL.

94. Agricultural Chemistry.—A study of soils, plants, feeding stuffs, animal and other products, from a chemical standpoint. Two periods. For Seniors. Professor WITHERS.

PHYSICS.

100. Elementary Physics.—In this course special stress is laid upon the subjects of mechanics, liquids, gases, and heat. It includes the study of fundamental units, British and metric standard measures, definitions of force, work and power, laws of motions, principles of machines, mechanics of fluids and gases, heat, and a brief introduction to the study of sound and light. For description of the Physical equipment, see page 116. Three periods. Required of Sophomores. Associate Professor HECK, Assistant Professor MCINTYRE, Mr. MCDOWELL.

MATHEMATICS.

110. Algebra.—Wells' *New Higher Algebra.* Begins with quadratic equations and complete summation of series, embracing ratio and proportion, variation, the progressions, the binomial theorem, undetermined coefficients, logarithms, compound interest and annuities, permutations, combinations and continued fractions. At the beginning of the term a review is usually given on involution, evolution, theory of exponents, and radicals. Five periods, first term; three periods, second term to March 15. Required of Freshmen. Prerequisites for first term, entrance requirements; for second term, the work of the first term, or, in case of failure, a term standing of 60 per cent or more, and a final examination grade of at least 40 per cent on the work of the first term. Professor YATES, Mr. HARRELSON, Mr. BLACKBURN, Mr. TUCKER, Mr. HALES.

111. Plane Geometry.—Wentworth and Smith's *Plane and Solid Geometry.* A complete course in plane geometry, including numer-

ous original exercises. Two periods, second term to March 15; five periods, March 15 to end of second term. Required of Freshmen. Prerequisite, entrance requirements. Professor YATES, Mr. HARRELSON, Mr. BLACKBURN, Mr. TUCKER, Mr. HALES.

ENGLISH.

120. Composition and Rhetoric.—After a review of the principles of English grammar, special attention is given to the selection of subjects, the planning of essays, and the study of words, sentences, and paragraphs. Frequent themes are required, the work being directed mainly upon the mechanics of writing and the making of reports on scientific studies. Required of Freshmen. Three periods first term. Mr. PRATT, Mr. FARRELL.

121. American Literature.—The study of the history of American literature is accompanied with the reading and analysis in class of the writings of representative American authors. Essays are based largely upon class and parallel reading. Three periods, second term. Required of Freshmen. Mr. PRATT, Mr. FARRELL.

122. Advanced Rhetoric.—The principles of style and the forms of discourse constitute the basis of the work. Scientific exposition in particular is studied in selected essays and addresses; and in frequent essays the principles learned are put into practice. Three periods, first term and second term to March 1. Required of Sophomores. Professor HARRISON, Doctor SUMMEY, Mr. PRATT.

123. Public Speaking.—The principles governing the preparation and the delivery of public addresses are given in text-book and in lectures. The reading in class of addresses in various styles, the writing of several papers by each member of the class, and practice in delivery, complete the work. Three periods, after March 1. Required of Sophomores. Professor HARRISON, Doctor SUMMEY, Mr. PRATT.

124. English Literature.—The inductive study of the development of English poetry and prose is pursued in the works of standard writers of the different periods. The continuity is emphasized by a text-book on the history of the literature. Occasional essays and parallel reading form an important part of the work. The purpose of the course is to cultivate in the student a taste for the best writings of the greatest writers. Three periods, two terms. Required of Juniors. Professor HARRISON, Doctor SUMMEY.

125. Journals.—To give practical knowledge of technical and of other standard journals is the purpose of this course. The frequent essays required are mainly of scientific and technical character. Two periods, first term. Open to Seniors. Professor HARRISON.

126. Classics.—The lives and works of the great scientists, and of other great writers, particularly of the nineteenth century, are studied in this course. Essays will be continued as in the first term. Two periods, second term. Open to Seniors. Professor HARRISON.

ECONOMICS.

130. Introductory Economics.—This course is designed to train the student in the elementary principles of Economics. A brief survey will be given of the problems which have arisen with the modern organization of business, such as labor problems, the relation of independents to the trusts, and the government regulation of business. Three periods, first term. Required of all Seniors in agriculture, except veterinary and normal students. Required of normal students in Junior year. Professor CAMP.

131. Agricultural Economics.—A study is made of the organization of agriculture in Europe and the United States. The general aim of the course is to train those who are planning to become agricultural experts or farmers, to an understanding of the business side of agriculture. Three periods, second term. Required of all students of agriculture in the Senior year, except veterinary and normal students. Normal students must take either course 131 or 132 in the Junior year. Professor CAMP.

132. Banking and Farm Credit.—The purpose of this course is to give an understanding of the necessity for credit on the farm and show how the need is met by the Mutual Credit Societies of Europe, by the banks of the United States, and by other loan agencies. Three periods, second term. Elective for Seniors. Professor CAMP.

133. Railroad Transportation.—A consideration of the different systems of railroad rates as affecting the shipment and the method of sale of farm products. Three periods, first term. Elective for Seniors. Professor CAMP.

134. Trusts, Pools and Combinations.—A study of the conditions which have led to the development of large business combinations; a description of the methods of organization of typical industries; an analysis of the advantages and disadvantages to be derived from large scale business organization; and a consideration of the different policies of government regulation. Three periods, second term. Elective for Seniors. Professor CAMP.

MODERN LANGUAGES.

The aim of the department is to enable one to use a limited vocabulary for practical purposes in speaking and writing fluently simple

sentences, without idiomatic expressions or difficult constructions; to read scientific works, and to know the meaning of difficult constructions and idiomatic expressions of the foreign language.

A unilingual method is used, based on conversation, humoristic anecdotes, interesting short stories, and scientific articles. The student is taught to think in the foreign language by a direct association of thoughts with foreign expressions, without the medium of English.

The meaning and fluent use of foreign expressions are taught by a direct appeal to real objects, gestures, pictorial illustrations, cognates, context, comparisons, contrasts, and associations, beginning with leading simple questions, and gradually progressing to more advanced ones, by frequent repetitions, and by a strict adherence to the rule that answers be always given in complete short sentences of the foreign language, and never by "yes," "no," or some other short word alone.

Grammatical and lexical details for the thorough understanding of the lessons are given. The rules are deduced from the examples, and the student is trained in their correct use by interesting connected matter.

Written examinations consist of translations from English into the foreign language, and of questions and answers in the foreign language. No English appears in an examination paper. No time is allowed for hesitancy. Answers are spoken fluently and written rapidly.

Students may take any one or all of the modern languages during the Junior or Senior year. The work is optional, but credit towards a degree is allowed for the successful completion of the work.

130. German.—Worman's *Modern Language*, first and second German books; *Deutsches Lese und Uebungsbuch*, by Prokosh; Fischer's *Practical Lessons in German; Practical German Grammar*, by Calvin Thomas; *German Reader*, by Fischer; and a scientific reader. Three periods. Elective for Juniors and Seniors. Doctor RUDY.

131. French.—Worman's *Modern Languages*, first and second French books; Worman's *Frammaire Francaise;* selected short stories from French literature, and scientific readers. This subject may be taken by special petition to the Faculty. Doctor RUDY.

132. Spanish.—Worman's *Modern Languages*, first and second Spanish books; *Introduccion a la Lengua Castellana*, by Marion y Des Garrenes; a Spanish Grammar to be selected; Fontaine's *Flores de Espana*, and other short stories from Spanish literature; *Modelos*

para Cartas. Elective for Juniors and Seniors in Civil and Electrical Engineering. Doctor RUDY.

SHOP AND DRAWING.

150. Wood Shop.—The use and care of ordinary woodworking and bench tools. Exercises in sawing, planing, and making joints. As much time as possible is spent in making models of small buildings, gates, etc. Required of Freshmen. Two periods, second term. Mr. WHEELER.*

152. Drawing.—Elementary drawing, elementary projection, freehand sketching and lettering. Geometrical problems. Freehand drawing. Two periods, first term. Required of Freshmen. Mr. COBURN.

MILITARY SCIENCE.

153. Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier, squad, company, and battalion; ceremonies including inspection, parade, review, and guard mounting; guard duty; marches and minor tactics; attack and defense; gallery and range target practice. Three hours a week. Lieutenant SPURGIN and Cadet Officers of the Battalion.

154. Tactics.—Theoretical instruction in Infantry Drill Regulations, Field-service Regulations, Map Reading, and Small Arms Firing Manual. One hour a week. Required of Sophomores. Lieutenant SPURGIN.

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*For description of the equipment, see page 102.

I (b). COURSE IN VETERINARY MEDICINE.

As a consequence of the frequent inquiries concerning a course in Veterinary Medicine at this College and in a realization of the need of competent veterinarians for the live-stock and meat and milk inspection interests of the South, the first two years' work in such a course is here outlined.

This arrangement is somewhat similar to the courses in human medicine given at other institutions in the State not offering a complete course.

This course is correlated with courses in other Veterinary Colleges, so that credit may be obtained in them for the subjects taken here.

There are a number of advantages to be gained by giving such a course in Veterinary Medicine at an Agricultural College where several of the fundamental subjects, especially along live-stock lines, are so aptly given.

Opportunity is given to Agricultural students in their Junior and Senior years to elect sufficient veterinary subjects to obtain credit for Freshman and Sophomore years in a Veterinary Course. See **page 62.**

For entrance requirements and fees, see pages 30-32, 33-35.

VETERINARY COURSE, TWO YEARS.

First Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
English, 168	3	3
Botany, 165	3	3
Agriculture, 167	3	0
Animal Husbandry, 166	0	3
Chemistry, 169	3	3
Anatomy and Clinics, 160, 161	3	3
Histology, 162	2	2
Physiology, 164	3	----------
Materia Medica, 163	----------	3
Drill, 190	3	3
Totals	23	23

Second Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Chemistry, 176	3	3
Zoology, 178	0	3
Physiology, 174	3	3
Animal Husbandry, 181	3	0
Anatomy and Clinics, 170, 171	3	3
Pathology, 172	2	2
Pharmacy, 173	3	0
Diagnosis, 175	0	3
Animal Husbandry, 170, 180	3	3
Drill, 190	3	3
Totals	23	23

Subjects of Instruction.

160. Veterinary Anatomy.—This subject will deal with the study of the skeleton, including bones and joints, and of muscles and digestive organs. A complete dissection of the muscles of the horse will be made. Three periods. Required of First-year men in Veterinary Medicine. Doctor Handley.

161. Clinics.—An essential part of the training of students in comparative medicine consists in seeing for himself animals suffering with the various diseases discussed in the classroom. To this end abundant clinic material is available in the veterinary hospitals in Raleigh. Clinic periods will be used for dissection from November to March. Three periods. Required of First-year men in Veterinary Medicine. Doctors Roberts, Koonce and Handley.

162. Histology.—A microscopical study of the tissues of the body, treating of the cell as the unit of structure, and of its functions; also of tissues, their classification and their relation to the structure of the organs. From dissection, clinics, and proximity to slaughter-houses, abundance of histological material of various animals is received. Two periods. Required of First-year men in Veterinary Medicine. Doctor Handley.

163. Materia Medica.—A study of the drugs used in comparative medicine will consist of their classification, composition, physiolog-

ical actions, and doses. Three periods, second term. Required of First-year men in Veterinary Medicine. Professor ROBERTS.

164. Physiology.—This study will include a comparative study of the bodily functions of man and the domestic animals. The subject will be covered by lectures and recitations, demonstrations and laboratory exercises. Three periods, first term. Required of First-year men in Veterinary Medicine. Doctor HANDLEY.

165. Elementary Botany.—Recitation, laboratory work and reference reading regarding the algæ, fungi, ferns, and seed plants. Morphology is emphasized, and the broad principles of nutrition, reproduction, growth, sex, adaptation, and evolution are illustrated. Particular consideration is given to the fungi and seed plants. The student's knowledge is made his own through laboratory work and simple independent investigations. Three periods. Required of First-year men in Veterinary Medicine. Professor FULTON, Mr. YOUNG.

166. Breeds of Live Stock.—A study of the origin, history, characteristics, adaptability, and popularity of the breeds of live stock. Every opportunity will be taken advantage of to teach the student the merits of the various breeds, and, when possible, classes of the breeds will be judged. Three periods, second term. Required of First-year men in Veterinary Medicine. Professor MCNUTT, Mr. SANBORN.

167. Agriculture.—Elementary and popular lectures introductory to the subject of Agriculture in its broad sense. The simpler properties of soils; tillage, fertilizers, conservation of fertility; seed selection; crops of North Carolina, rotation, etc., will be briefly considered by lecture and practical demonstration in the laboratory and in the field. Three periods, first term. Required of First-year men in Veterinary Medicine. Professor NEWMAN.

168. Composition and Rhetoric.—After a review of grammatical principles, especial attention is given to the selection of subjects and the planning of essays, to the choice of words, and to the structure of sentences and paragraphs. Standard poetry and prose are read in class, and additional books are assigned for parallel reading. Frequent short themes are written. Three periods. Required of First year men in Veterinary Medicine. Mr. PRATT, Mr. FARRELL.

169. Inorganic Chemistry.—Brownlee's *First Principles of Chemistry.* The Common elements and their principal compounds are studied, together with some of the fundamental principles of the science. The lectures are illustrated by experiments and the exhibition of specimens. Laboratory work accompanies the classroom

work. Three periods. Required of First-year men in Veterinary Medicine. Professor WITHERS, Doctor WILLIAMS, Mr. FETZER.

170. Veterinary Anatomy.—A continuation of course 160. A study of the respiratory, circulatory, and nervous systems will be made, with complete dissection of each in the horse. Three periods. Required of Second-year men in Veterinary Medicine. Doctor ROBERTS.

171. Clinics.—These will be given as in the year previous and will give the student opportunity of putting into practice the information he has gained from the study of clinical diagnosis. In connection with the clinics, autopsies are frequently held, giving the students excellent opportunities to observe changes in body structure resulting from disease. Clinic periods will be used for dissection from November to March. Three periods. Required of Second-year men in Veterinary Medicine. Doctors ROBERTS, KOONCE, HANDLEY.

172. Pathology and Bacteriology.—A large number of specimens of diseased tissue already present in the museum and opportunity for collecting others from clinics and abattoirs insure plenty of material to demonstrate the various macroscopical and microscopical changes in organs and tissues due to disease. Especial attention is paid to the isolation and study of pathogenic bacteria from the various organs of diseased animals. Two periods. Required of Second-year men in Veterinary Medicine. Doctor HANDLEY.

173. Materia Medica and Pharmacy.—Course 163 will be continued with prescription writing and laboratory work in the preparation, compounding and dispensing of medicines. Three periods, first term. Required of Second-year men in Veterinary Medicine. Professor ROBERTS.

174. Veterinary Physiology.—A comparative study of the bodily functions of the various domestic animals is made, with special reference to digestion, respiration, circulation, and secretion. Three periods. Required of Second-year men in Veterinary Medicine. Professor ROBERTS, Doctor HANDLEY.

175. Clinical Diagnosis—This subject is taught for the purpose of studying the methods for the examination of animals to detect and diagnose the various diseases affecting them. Three periods, second term. Required of Second-year men in Veterinary Medicine. Professor ROBERTS.

176. Organic Chemistry.—Lectures and laboratory work. Moore's *Outlines of Organic Chemistry*. Three periods. Required of Second-year men in Veterinary Medicine. Professor WITHERS.

178. Zoology.—An elementary study of all forms of animal life—regarding their general structure and classification, with particular

reference to type examples of the principal groups of some economic importance—is given by text-book, laboratory work, and supplementary lectures. The first term's work is devoted to invertebrates, but with only a brief study of the true insects. The second term covers vertebrate animals. This course is planned to give the student a general knowledge of the animal kingdom and to lay a foundation for the more special subjects that are to follow. Three periods, second term. Required of Second-year men in Veterinary Medicine. Associate Professor METCALF.

179. Stock Feeding.—A study of the composition of feeds and the food requirements of the domestic animals. The student will be required to become familiar with the fundamental principles so that he can compound suitable rations for the different classes of live stock. Especial emphasis will be laid upon practical problems in feeding. Three periods, first term. Required of Second-year men in Veterinary Medicine. Text-book, Henry's *Feeds and Feeding*. Professor MCNUTT.

180. Live-stock Judging.—A study of the score-card and its use. A comparison of the score-card for the various breeds, and practical scoring. Methods and rules in judging the various classes of live stock. In practical judging the student will be required to give oral or written reasons to sustain his placing of the animals. Three periods, second term. Required of Second-year men in Veterinary Medicine. Professor MCNUTT.

181. Dairying.—Text-book and lecture course covering the fundamental principles of modern dairying. The laboratory work consists of practice in the use of modern dairy equipment. Each student is required to become familiar with the construction, care, and operation of the leading makes of cream separators. Proficiency is required of the student in testing and standardizing milk and cream, and in cream-ripening, churning, working, packing, and scoring butter. Three periods, first term. Required of Second-year men in Veterinary Medicine. Mr. SALISBURY.

190. Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier; squad, company and battalion ceremonies, including inspection, parade, review, and guard mounting; guard duty; marches and minor tactics; gallery and range target practice. Three hours a week for the first and second terms. Two hours a week required of all classes. Lieutenant SPURGIN. Cadet Officers of the Battalion.

SHORT COURSES IN AGRICULTURE.

In order to meet the necessities of young men who wish to prepare themselves for the industrial arts rather than for industrial science and art, the following short courses are offered. None of these courses, of course, lead to graduation, and they are not, in any sense, intended as preparatory courses to the regular four-year-classes. They are designed simply to help young men better fit themselves, by a year or two of practical work under competent and interested supervision, for their chosen spheres of industrial activity.

Those students whose inclinations, limitations, or necessities lead them to take these shorter courses will be carefully drilled in the handicraft and mechanism of their art, and in the application of elementary science to the farm, dairy, garden, and orchard.

1 (c). TWO-YEAR COURSE IN AGRICULTURE.

This course offers, in addition to the purely agricultural branches, introductory and cultural subjects, and thus enables the student to secure not only all the technical and practical work of the One-year Course, but Physiography, Physics, English, and Mathematics, in addition, and all the better prepares young men to become farmers, farm managers, and teachers of agriculture and allied branches in the public schools. A description of the equipment will be found on page 49 and following pages.

TWO-YEAR COURSE.

First Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Agriculture	2	2
Physiology and Hygiene	2	0
Physiography	0	2
Plant Culture	0	2
Physics	2	2
Carpentry	2	0
Mathematics	5	5
English	5	5
Drill	3	3
Totals	21	21

Second Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Agriculture	3	3
Soils and Fertilizers	0	3
Animal Husbandry and Dairying	3	6
Veterinary Science	3	0
Poultry	3	0
Horticulture	3	3
Botany and Plant Diseases	3	0
English	3	3
Entomology	0	3
Drill	3	3
Totals	24	24

Subjects of Instruction.

Agriculture (Two-year Course); First Year.—A broad elementary introduction to the study of Agriculture, including the more important field crops of the State. The history, classification, adaptation, culture, harvesting, marketing, and uses of corn and small grain. Two periods. Mr. Hodson.

Second Year.—Cotton, legumes, hay and forage plants, seeds and seed selection; farm equipment, farm management. Three periods. Professor Newman, Mr. Hodson.

Physiography.—A study of the natural agencies affecting the earth's surface; soil, water, air, and temperature, and their effect upon plants and animals. Two periods, second term. Required of first-year students. Professor Sherwin.

Soils; Second Year.—This will include a stduy of the soils of the State; their formation and classification into agricultural types; their physical properties; relation to moisture and air supply; best methods of conserving and regulating the soil moisture; principles and practice of drainage. The effect of different soil and crop treatments, such as rotation, cultivation, and fertilization, will be studied. Considerable attention will be given to humus, farm manures, and green manures, and to the use and home-mixing of fertilizers, with special reference to the time and methods of using. Three periods, second term. Professor Sherwin.

SHORT COURSES.

Two-Year Course.

Principles of Plant Culture; First Year.—A course in which the functions of various parts of plants; the activities engendered by heat, cold, moisture and light; and the effect of soil and climate upon the growth of plants are considered. The propagation, planting and training of plants are also included. Practice work consists in laboratory and field exercises demonstrating the facts studied. Two periods, second term; recitations one hour; practice, two hours per week. Mr. STODDARD.

Fruit Culture; Second Year.—A course in practical fruit growing as applied to the different sections of the State. The principal fruits are treated as to location, sites, soils, choice of varieties, best method of propagation, preparation of the land, laying out the orchard, its planting and training, spraying, fertilization, management, and the harvesting, storing and marketing of the fruit. Three periods, first term. Mr. STODDARD.

Vegetable Gardening; Second Year.—This course treats of the growing of vegetables for home use, the culture of the principal "truck" crops; and the forcing of vegetables under glass. Practice includes the work of seed sowing, transplanting, and culture of the leading vegetable crops, both under glass and in the field. Each student is required to plan, plant and manage a definite plot assigned to him for the purpose of applying the knowledge gained in the classroom. Three periods, second term. Mr. STODDARD.

One Year Course.

Fruit Culture.—A course in practical fruit growing, as applied to the different sections of the State. The principal fruits are treated as to location, sites, soils, choice of varieties, best method of propagation, preparation of the land, laying out the orchard, its planting and training, spraying, fertilization, management, and the harvesting, storing and marketing of the fruit. Three periods, first term. Mr. STODDARD.

Vegetable Gardening.—This course treats of the growing of vegetables for home use, the culture of the principal "truck" crops; and the forcing of vegetables under glass. Practice includes the work of seed sowing, transplanting, and culture of the leading vegetable crops, both under glass and in the field. Each student is required to plan, plant and manage a definite plot assigned to him for the purpose of applying the knowledge gained in the classroom. Three periods, second term. Mr. STODDARD.

Botany and Plant Diseases.—The structure of seed plants is studied and the general principles of nutrition, growth, reproduction, are discussed in an elementary and practical way. Practical instruction will be given concerning representative fungous and bacterial diseases attacking field, orchard, and garden crops; how to recognize them and how to prevent them, including instruction concerning the preparation of spraying mixtures. Second year. Three periods, first term, Professor FULTON.

Animal Husbandry.—Study of breeds, judging and management of live stock, animal breeding, and stock feeding. There will be lectures on all the above subjects, supplemented by practical work as far as possible. Second year. Three periods, first and second terms. Professor MCNUTT and Mr. SALISBURY.

Dairying.—This course is designed to give a good working knowledge of farm dairy operations.

The student while in the dairy laboratory uses the leading makes of separators, churns, butter-workers, Babcock testers, etc., until he becomes familiar with their construction and proficient in operating them.

The laboratory course is supplemented by lectures of a practical nature, covering the most important features of dairying. It is a course of study which should meet the requirements of the farmer and dairyman who handle dairy products, whether for home use or for commercial purposes. Three periods, second term. Mr. SALISBURY.

Poultry Husbandry.—Classification and study of the breeds of domestic poultry; breeding, feeding, and management; construction and location of poultry houses; production and marketing of eggs; production, killing, and marketing of poultry; capons and caponizing; incubation and brooding. Second year. Three periods, first term. Mr. TAYLOR.

Physiology and Hygiene, First Year.—The principles of physiology and hygiene are essential to the rational feeding and care of the human body, as well as those of animals. Lectures, recitations and demonstrations will be used in covering this subject in an elementary way. Two periods, first term. Doctor HANDLEY.

Veterinary Science, Second Year.—The lectures on this subject treat of elementary veterinary anatomy, the care of live stock to prevent diseases, and the treatment of some of the most common diseases. Three periods, first term. Doctor ROBERTS, Doctor KOONCE.

Entomology.—This is a short course in which the more noxious insects are studied, with special reference to methods of preventing

their injuries. The various insecticides and methods of spraying are also included in this course. Three periods, second term. Associate Professor METCALF.

Physics.—Properties of matter, fundamental units, British and metric standard measures, mechanics, liquids, gases, heat, introduction to light and sound. First year. Two periods. Assistant Professor MCINTYRE, Mr. MCDOWELL.

Algebra.—Wells' *New Higher Algebra*. A thorough treatment of the fundamental conceptions and operations of Elementary Algebra, embracing factoring, fractions, simple equations, simultaneous equations in two or more unknowns, problem solving, involution, evolution, theory of exponents, and radicals. First term, five periods; and second term to March 15, five periods. Mr. HARRELSON, Mr. BLACKBURN, Mr. HALES.

Plane Geometry.—This course begins the subject and completes three books, special attention being given to original exercises. Five periods, March 15, to end of second term. Mr. HARRELSON, Mr. BLACKBURN, Mr. HALES.

English.—This is a thoroughly practical course in the elements of grammar and of composition, especially spelling, sentence and paragraph structure, and letter-writing. Some reading is done in class, and supplementary reading also is assigned for private study. First year. Three periods. Mr. PRATT, Mr. FARRELL.

Composition and Rhetoric.—After a review of grammatical principles, especial attention is given to the selection of subjects and the planning of essays, to the choice of words, and to the structure of sentences and paragraphs. Standard poetry and prose are read in class, and additional books are assigned for parallel reading. Frequent short themes are written. Second year. Five periods. Mr. PRATT, Mr. FARRELL.

Wood Shop.—The use and care of ordinary woodworking and bench tools. Exercises in sawing, planing, and making joints. As much time as possible is spent in making models of small buildings, gates, etc. First year, two periods. Mr. WHEELER.

Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier; squad, company, and battalion ceremonies, including inspection, parade, review, and guard mounting; guard duty; marches and minor tactics; gallery and range target practice. Three hours a week. Required of all classes except Seniors. Lieutenant SPURGIN and Cadet Officers of the Battalion.

I (d). ONE-YEAR COURSE IN AGRICULTURE.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Agriculture	3	3
Soils and Fertilizers	0	3
Animal Husbandry and Dairying	3	6
Veterinary Science	3	0
Poultry	3	0
Horticulture	3	3
Plant Life	3	0
English	3	3
Carpentry	1	1
Entomology	0	3
Drill	3	3
Totals	25	25

Subjects of Instruction.

Agriculture.—The course in Elementary Agriculture will consist of lectures and recitations on crops, farm equipment, and farm machinery. One period per week will be devoted to practical exercises, including the identification and habit of growth of farm crops and the drawing of plans for farms and farm buildings. The work will be made practical and will be suited to the needs of the student. Three periods. Professor Newman, Mr. Hodson.

Soils and Fertilizers.—This will include the study of the soils of the State, their formation and classification into agricultural types; their physical properties, relations to moisture and air supply; best methods of conserving and regulating the soil moistures; principles and practice of drainage; effect of different soil and crop treatments, such as rotation, cultivation, and fertilization. Considerable attention will be given to humus, farm manures and green manures, and the use and home-mixing of fertilizers, with special reference to the time and methods of using and the best mixtures for the different types of soil. Three periods, second term. Professor Sherwin.

Animal Husbandry.—Study of breeds, judging and management of live stock, animal breeding, and stock judging. There will be

lectures on all the above subjects, supplemented by practical work as far as possible. Three periods, first and second terms. Professor McNUTT and Mr. SALISBURY.

Dairying.—This course is designed to give a good working knowledge of farm dairy operations.

The student while in the dairy laboratory uses the leading makes of separators, churns, butter-workers, Babcock testers, etc., until he becomes familiar with their construction and proficient in operating them.

The laboratory course is supplemented by lectures of a practical nature, covering the most important features of dairying. It is a course of study which should meet the requirements of the farmer and dairyman who handle dairy products, whether for home use or for commercial purposes. Three periods, second term. Mr. SALISBURY.

Veterinary Science.—The lectures on this subject treat of elementary veterinary anatomy and physiology, the care of live stock to prevent diseases, and the treatment of some of the most common diseases. Three periods, first term. Doctor ROBERTS, Doctor KOONCE.

Poultry Husbandry.—Classification and study of the breeds of domestic poultry; breeding, feeding, and management; construction and location of poultry houses; production and marketing of eggs; production, killing, and marketing of poultry; capons and caponizing; incubation and brooding. Three periods, first term. Mr. TAYLOR.

Fruit Culture.—This course treats of fruit growing as applied to the different sections of the State and the possibilities embodied in its further development. A text-book on the general subject of fruit culture is supplemented by lectures on the leading fruits, dealing with the kind of soil for fruits and its preparation, laying out the orchard, varieties, methods of propagation, planting, cultivation, fertilizing, pruning, harvesting, and marketing. Practical exercises are given in laboratory, orchards, and vineyards, which include budding, grafting, top-grafting; making of cuttings; pruning of fruit and ornamental trees; fruit bud studies, planting and transplanting; identification of varieties; packing; and handling of nursery stock. Three periods, first term. Mr. STODDARD.

Vegetable Gardening.—This course treats of the trucking industry of the State, and the growing of vegetables for home use. A text-book is used, supplemented by lectures on the growing, handling, and the marketing of the leading vegetables. Mr. STODDARD.

Practical exercises are given in the laboratory and field which

include germinative tests of seeds; seed sowing; methods of transplanting and culture; manipulation of garden tools; construction and management of hotbeds and cold-frames, and protection of plants from insects. Three periods, second term. Mr. STODDARD.

Plant Life.—The structure of seed plants is studied and the general principles of nutrition, growth, reproduction, are discussed in an elementary and practical way. Practical instruction will be given concerning representative fungous and bacterial diseases attacking farm crops, fruit trees, etc.; how to recognize them and how to prevent them, including instruction concerning the preparation of spraying mixtures. Three periods, first term. Professor FULTON.

Entomology.—This is a short course, in which the more noxious insects are studied, with special reference to methods of preventing their injuries. The various insecticides and methods of spraying are also included in this course. Three periods, second term. Associate Professor METCALF.

Wood Shop.—The use and care of ordinary woodworking and bench tools. Exercises in sawing, planing, and making joints. As much time as possible is spent in making models of small buildings, gates, etc. Two hours, first and second terms. Mr. WHEELER.

English.—This is a thoroughly practical course in the elements of grammar and of composition, especially spelling, sentence and paragraph structure, and letter-writing. Some reading is done in class, and supplementary reading also is assigned for private study. Three hours a week. Required of one-year students. Mr. PRATT, Mr. FARRELL.

Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier; squad, company and battalion ceremonies, including inspection, parade, review, and guard mounting; guard duty; marches and minor tactics; gallery and range target practice. Three hours a week. Required of all classes except Seniors. Seniors may elect either the drill or three hours extra in some other subject in its place. Lieutenant SPURGIN and Cadet Officers of the Battalion.

WINTER SHORT COURSE IN AGRICULTURE.*

FOUR-WEEKS COURSE IN GENERAL AGRICULTURE.

Begins January 11, and ends February 6, 1915.

The Winter Course in Agriculture is a practical course in farming given by practical men for practical farmers. It is open to all who are engaged in or interested in farming, and is designed to aid the man who wishes to farm in a modern and business way, who wants larger and better returns for his labor and who wants to make a better and more comfortable home on his farm. It is designed to aid farmers who wish:

To manage their soils so that there will be a gain and not a loss in soil fertility;

To use fertilizer and manures with less expense and with better results;

To save soil moisture and plant food;

To save soil from washing away;

To rotate crops so as to add to crop yields and increase the fertility of the soil;

To select the best types and best individual dairy and beef cattle and to feed and manage them to the best advantage;

To judge all kinds of cattle, horses, hogs, sheep and poultry;

To breed live-stock so that each generation may be improved;

To produce and feed balanced rations for the best economy and best results;

To fight insect enemies intelligently and fungus and bacterial diseases with success;

To prevent diseases in live-stock;

To care for live stock so as to keep them healthy and to get the most profitable return from their work and products;

To hatch, feed, and care for poultry;

To breed, graft and otherwise propagate plants;

To know when and how to spray;

To grow fruits and vegetables successfully.

These and other things will be taught simply, practically and as thoroughly as the time will permit.

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*Details will be announced in the Winter Course Circular, which is published in November of each year.

EQUIPMENT.

So far as it can be used, the entire agricultural equipment of the College is put at the service of the members of the Winter Course class. The laboratory and classroom equipment, the several large barns with their equipment of live stock, machines, implements, tools, appliances and silos; the dairy, with its modern equipment; the horticultural plant; the poultry houses and yards; the libraries are all used to make the course both interesting and profitable.

DOES SUCH A COURSE PAY?

All those who have taken this course unite in saying that it has paid them many fold. A thoughtful man has his eyes opened to see so many ways of improving his methods, his soil, his animals, his crops, his orchard, his truck farm and his poultry that such a training as is given in the Winter Course can not fail to bring, not only a handsome economic return, but also a rich return in the greater pleasure given to his work.

EXPENSES.

No tuition is charged for the Winter Course. The College can not offer rooms to students entering this course but will furnish meals at the dining hall at $2.75 per week. Rooms may be rented either in West Raleigh or in Raleigh, at from $2.50 per week up.

ADMISSION.

No examinations are required for entering the Winter Course and any person over eighteen years of age may enter with full privileges. The greater part of the instruction consists of lectures and laboratory exercises and the full time of the students is provided for. Some of the evenings will be devoted to popular lectures and some to student meetings. The regular work of the Winter Course begins January 9 at 8.15 a. m., and all students should arrive the day before so as to arrange for board and room.

For further information write the

PROFESSOR OF AGRICULTURE,
West Raleigh, N. C.

OUTLINE OF FOUR-WEEKS COURSES.

GENERAL AGRICULTURE.

Professor Newman and Mr. Hodson.

Farm Crops.—First a general review of the farm crop situation in the several agricultural divisions of the State will be discussed. Following this the legumes, small grains and cover crops will be considered from the viewpoints of profitable production of the crops themselves, and their relation to live stock and the conservation of soil fertility. Forage, hay and pasture crops will be studied and discussed. Rotations for corn, cotton, small grain, and tobacco will be planned and discussed and suggestions made for at least a partial reorganization of the present farm cropping systems for increasing the farmer's profits, economizing labor and conserving fertility.

SOILS AND FERTILIZERS.

Professor Sherwin.

This will include a study of the soils of the State; their formation and classification into agricultural types; their physical properties; relation to moisture and air supply; best methods of conserving and regulating the soil moisture; principles and practices of drainage.

The effect of different soil and crop treatments, such as rotation, cultivation, and fertilization, will be studied. Considerable attention will be given to humus, farm manures and green manures, and to the use and home-mixing of commercial fertilizers, with special reference to the time and methods of using and the best mixtures for special crops on different types of soil.

ANIMAL HUSBANDRY.

Professor McNutt and Mr. Salisbury.

Breeds of Live-Stock.—Lectures on this subject will treat of characteristics of the different breeds of live-stock.

Stock Judging.—This work will be made practical and it will be done in the stock judging room where the students will be taught the use of the score card and the points to be considered in the selection of good animals.

Stock Feeding.—Lectures on this subject will treat of the composition and digestibility of the various home-grown and commercial feeds; methods of calculating rations and suggestions as to the most economical feeds to use.

DISEASES OF LIVE-STOCK.

Doctors Roberts and Handley.

Lectures will first briefly cover elementary anatomy, physiology and hygiene of domestic animals. These lectures will include some comparisons between man and domestic animals. Mounted skeletons of the horse, cow, and of man will be used to assist in making this part of the anatomy more readily understood.

This course will also cover the care and management of live-stock to prevent disease, and the nature, causes and treatment of the more common diseases and injuries. Special emphasis will be laid upon the means of preventing disease. During the course there will be a practical demonstration of the tuberculin test upon the dairy herd.

AGRICULTURAL BOTANY.

Professor Fulton.

This course will consist of ten lectures. Five of them will treat of the fundamental physiological processes in plants relating to nutrition, growth and reproduction. The remaining five will treat in a practical way of the important fungous diseases of field, garden and orchard crops. Ample illustrative material will be used.

SOILS AND DRAINAGE.

Professor Sherwin.

Forces in the formation of soil; causes of variation in the natural fertility; effect of artificial methods of soil management; influence of cultural methods, fertilization, soil moisture, humus, and lime; soils best adapted to different kinds of farming, to different fertilizers, and to different crops; drainage of farm lands.

Special soils of North Carolina will be given special consideration.

ENTOMOLOGY.

Professor Metcalf.

The aim of this course will be to teach the farmer to recognize his insect friends and enemies. We pay a much greater tax to insects each year than we do to the State and local government in taxes for several years, and yet there are many farmers who know practically nothing about insects. The farmer should know something about the lives of these interesting animals and how to control the injurious forms.

The course will be illustrated by specimens, charts, and photographs in order to familiarize the farmer with the principal insects attacking farm crops and fruit trees.

POULTRY RAISING.

Mr. Taylor.

Since ninety-five per cent of the poultry produced in this country is grown on the farms, poultry culture in this course will be treated from the farmer's standpoint.

In this connection attention is called to the great and growing demand for poultry products. But a few years ago eggs sold at ten cents per dozen, now forty and fifty cents is not unusual at certain times of the year. Formerly young chickens brought from ten to twenty-five cents each and old hens twenty-five cents. Now thirty-five cents is a low price on the local market for young stock and old hens bring from seventy-five cents to a dollar.

The breeds and varieties best suited for the farmer, both for eggs and meat, will have first consideration.

The houses and location of same with reference to convenience and health of the flock will also be discussed.

As the annual loss from bad and improperly handled eggs for market for the United States is $25,000,000, of which North Carolina bears more than her share, particular stress will be laid on the production of good marketable eggs.

The reasons why poultry undrawn, dry picked keeps better and commands a higher price in the best markets of the country will be demonstrated.

Caponizing, one of the easiest operations learned, will have special attention. By this operation thousands of dollars can be saved to the State, increasing the quality and quantity of flesh on the thousands of surplus cockerels now marketed yearly.

Incubating and brooding, both natural and artificial, will have thorough treatment.

During the past year the Experiment Station has been testing the Petulama method of brooding chicks in lots of 500 to 1,000, and will this year test several heaters designed for this purpose.

The College and Station flocks consist of ten of the most popular and useful varieties of poultry, embracing both the general purpose and egg breed of fowls. They are kept in several types of houses so that the different styles can be seen and compared.

The incubator cellar contains fifteen machines of several different standard makes and the students have the opportunity of becoming familiar with the best.

To those who may wish to specialize in poultry culture as far as time will admit, opportunity will be given to become familiar with the details of running a poultry plant by being given an incubator and brooder, a pen of fowls to care for, etc.

HORTICULTURE.

Professor Pillsbury and Mr. Stoddard.

The course in Horticulture is designed to meet the demand for practical instruction along the lines of propagation, fruit growing, and vegetable gardening. Especial consideration will be given to the application of principles and methods to North Carolina conditions.

Plant Propagation is to be presented by means of lectures, demonstrations, and actual practice. The methods used in multiplying plants, such as seed sowing, separation and division, the making of cuttings and layers, and budding and grafting, will be treated in turn.

Fruit Growing is to be considered both from the standpoint of the farmer and that of the fruit grower. It is to be treated by means of lectures on the principal fruit crops, and demonstrations and practice in the selection of sites and soils, the laying out of orchards, the planting, pruning and training of trees, spraying, and the marketing of the fruit.

Vegetable Gardening will treat of the culture of the leading vegetables for both market and home use. Every farm should be supplied with a home garden, and the consideration of this branch of Horticulture is vital to the success of the farmers of the State. Lectures upon the principal crops will be supplemented by demonstrations and practice in the selection of sites and soils, formation of garden plans, in the construction and use of cold-frames and hot-beds, starting early vegetables, transplanting, cultivation, and marketing.

Equipment.—The Department of Horticulture has under its management about twenty-five or thirty acres of land which is devoted to the culture of all the standard tree, vine, and small fruits and vegetables which it is possible to grow successfully in this climate, as well as other varieties maintained for instructional purposes.

In the fruit plantation, which is very complete, are to be found standard sorts of apples, pears, peaches, plums, cherries, quinces, persimmons, pecans, figs, muscadine grapes, fox grapes, raspberries, blackberries, dewberries, and strawberries. There is also a nursery in which both fruit and ornamental plants are grown. This is es-

pecially valuable in providing material and opportunity for carrying on various methods of plant propagation, as well as in furnishing stock of all kinds for planting about the grounds.

The area devoted to vegetable gardening is quite extensive and is conducted in a large measure upon a commercial basis. This is possible because of an arrangement with the Department whereby the College dining-room is supplied with fresh vegetables throughout the year. Here all the leading vegetables are grown in season according to the best practice in rotation, fertilization, tillage and harvesting, and the student is provided with ample materials for study and practice.

The Horticultural grounds are also worthy of study as to the design as a whole, and provide an example of how a home may be made attractive by means of lawn, trees, shrubs, and vines.

AGRICULTURAL EXTENSION.

The Department of Agricultural Extension was organized July 1, 1909. This department was and is made possible by the help of the General Education Board in the United States. The work is closely correlated with that of the United States Department of Agriculture. The object of this department is to link the scientific agricultural work of the College and Station to the practical work on the farms of the State. Each year the trained scientific workers of America add to the fund of information needed by progressive farmers. The object of this department is to carry this information to the busy men on the farm, and to help in the teaching of farm science in our schools. This is done by addresses to farmers, by farm schools held in different sections, holding seed-corn days, organizing boys' corn clubs, addressing County Teachers' Associations in the interest of agricultural education in the public schools, and in such other ways as time and occasion may permit. Professor T. E. BROWNE.

II. ENGINEERING COURSES.

a. Four-year Course in Civil Engineering.
b. Four-year Course in Mechanical Engineering.
c. Two-year Course in Mechanic Arts.
d. Four-year Course in Electrical Engineering.
e. Four-year Course in Chemistry.

The Engineering courses give a thorough grounding in such fundamental sciences as Mathematics, Physics, and Chemistry, and thorough drill in the application of the principles thus learned to engineering problems. The student is given practice in the use of engineering instruments and methods, and is encouraged to rely upon his own resources in the solution of problems. Though the courses are primarily technical and practical, they include subjects of general culture throughout all four years.

The Freshman years of all the Engineering Courses are identical and include a great deal of practice. The student in the different shops learns the use of tools and the handling and manipulation of materials of construction. Instruction is given in working wood and iron. In the Sophomore year this work is continued in the pattern-making shop and in the foundry. Also in the Physical laboratory much attention is paid to the practical value of such instruction. Here the student is taught the science of measurement and is trained to observe and work accurately. During these two years he is also given a thorough training in Mechanical Drafting, skill in which is essential in all lines of engineering work.

Differentiation of the different engineering courses begins in the Sophomore year. The practical work here, in the shop, in the field or in the laboratory, directs the student's attention to the specific phases of that branch of the profession he is to follow. In the Junior year the study of engineering methods is begun and is continued more fully in the Senior year.

Upon the satisfactory completion of these courses the degree of Bachelor of Engineering is conferred. The advanced degrees of Civil Engineer, Electrical Engineer, and Mechanical Engineer may also be conferred upon graduates of three years standing who have had responsible charge of important work, upon complying with the College requirements (see page 160).

More detailed descriptions of the different courses follow.

COURSE IN CIVIL ENGINEERING.

The aim of the course in Civil Engineering is to give such training as will enable our young men to take an active part in the work of advancing our State along material lines—developing its water-power, building railroads and public highways, constructing water supply and sewerage systems for our towns, etc. The student is given a large amount of practical work in the field and draughting-room, and acquires a fair degree of efficiency in the use of the various surveying instruments, and in draughting. At the same time it is recognized that a successful engineer requires a well-trained mind—one that reasons logically, accurately, and quickly. Therefore a thorough course is given in all those branches of applied mathematics which are involved in the solution of engineering problems.

The aim has been to make this pre-eminently a technical course; but subjects of general culture are included in order to give the student a broader mental training and better preparation for social and business life.

Civil Engineering Equipment.

There is a complete equipment of all instruments necessary to civil engineering field work. The classrooms, drawing-rooms, and laboratories are in Winston Hall.

II (a). The Four-year Course in Civil Engineering, leading to the degree of Bachelor of Engineering.

Freshman Year.

Subjects.	Periods a Week.*	
	1st Term.	2d Term.
Mechanical Drawing, 230†	2	2
Woodwork, 235	2	2
Forge Work, 236	--	2
Shop Lectures, 253	2	--
Algebra, 340	5	--
Geometry, 341	--	5
Physics, 280	4	4
Physical Laboratory, 282	1	1
Composition and Rhetoric, 360	3	--
American Literature, 361	--	3
Military Drill, 390	3	3
Totals	22	22

Sophomore Year.

Architecture, 220	2	--
Architectural Drawing, 221	2	2
Advanced Algebra, 343	5	--
Trigonometry, 344		
Analytical Geometry, 345	--	5
Descriptive Geometry, 200	--	2
Physics, 281	2	2
Physical Laboratory, 283	1	1
Inorganic Chemistry, 300	3	3
Inorganic Chemistry (laboratory), 301	2	2
Advanced Rhetoric, 362	3	3
Public Speaking, 363	--	
Military Drill, 390	3	3
Military Tactics, 391	1	1
Totals	24	24

*The lecture and recitation periods are one hour; the laboratory, shop, and other practice periods, two hours.

†The figures immediately following the name of the study are given to aid one in finding readily a description of the subject. Under each department a number precedes the description of the study.

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Road Building, 212	1	1
Surveying, 202, 206	2	2
Surveying (field work), 207	2	2
Construction, 205	2	--
Topographical Drawing, 203	2	2
Graphic Statics, 201	--	2
Mechanics, 204	3	3
Analytical Geometry, 345	5	2
Calculus, 346	--	3-5
English Literature, 364	3	3
Military Drill, 390	3	3
Modern Languages (elective), 370, 372	3	3
Totals	23	23

Senior Year.

Mechanics of Materials, 215	3	--
Roofs and Bridges, 209	3	--
Bridge Design, 210	--	3
Municipal Engineering, 211	--	2
Surveying (field work), 208	2	--
Hydraulics, 216	--	2
Calculus, 346	3	--
Railroad Engineering, 206	3	3
Reinforced Concrete, 214	--	2
Astronomy, 213	--	2
Laboratory, 217	--	2
Mechanics, 204	2	--
Journals, 365	2	--
Classics, 366	--	2
Economics, 367	1	1
Elect one of the following:		
Military Drill, 390	3	3
Modern Languages, 370, 372	3	3
Totals	22	22

Subjects of Instruction.

200. Descriptive Geometry, Stereotomy.—Text-book, lectures, problems, and completed drawings. Two periods, second term. Required of Sophomores in Civil Engineering. Mr. POOLE.

201. Graphic Statics.—Determination of stresses in frame structures by graphical methods. Lectures and original problems. Two periods, second term. Required of Juniors in Civil Engineering. Professor MANN.

202. Surveying.—Land surveying, leveling, elements of triangulation, topographical surveying, road location. Two periods, first term. Required of Juniors in Civil Engineering. Professor MANN.

203. Topographical Drawing.—Conventional signs, computations, forms of field notes, methods of platting, completed map from field notes. Two periods. Required of Juniors in Civil Engineering. Professor MANN.

204. Mechanics.—Nature and measurement of forces, moments, conditions of equilibrium, moment of inertia, laws of motion, constraining and accelerating forces, dynamics of a rigid body, momentum and impact, work, power, friction, application of principles to various engineering problems. Three periods. Required of Juniors in Civil Engineering. Two periods, first term. Required of Seniors. Professor RIDDICK, Professor MANN.

205. Construction.—Masonry, foundations, railroads, dams, retaining walls, arches, etc. Baker's *Masonry Construction.* Lectures. Two periods, first term. Required of Juniors in Civil Engineering. Professor MANN.

206. Railroad Engineering.—Reconnaisance, preliminary and location surveys, cross-sections, compound curves, spirals, etc. Searles' *Field Engineering.* Two periods, second term. Required of Juniors in Civil Engineering. Three periods. Required of Seniors in Civil Engineering. Professor MANN.

207. Surveying.—Field work. Use of instruments, compass, level, transit, and plane table. Practical work in land surveying, topography, leveling, railroad surveying, working up notes, and platting. Two periods. Required of Juniors in Civil Engineering. Professor MANN, Mr. POOLE, Mr. TUCKER.

208. Surveying.—Field work. Triangulation and topography, use of sextant and plane table, surveys for sewers, waterworks, etc. Two periods, first term. Required of Seniors in Civil Engineering. Professor MANN, Mr. POOLE, Mr. TUCKER.

209. Roofs and Bridges.—Determination of stresses in roof and bridge trusses by the analytical method. Merriman's *Roofs and*

Bridges. Original problems. Three periods, first term. Required of Seniors in Civil Engineering. Professor RIDDICK.

210. Bridge Design.—Calculation of stresses, design, specifications, and estimate of cost of a wooden rooftruss and a steel railway bridge. Three periods, second term. Required of Seniors in Civil Engineering. Professor RIDDICK.

211. Municipal Engineering.—Text-books, lectures. Two periods, second term. Required of Seniors in Civil Engineering. Professor RIDDICK.

212. Road Building.—Text-book on construction of roads, streets and pavements. Lectures on practical roadmaking in North Carolina. One period. Reqired of Juniors in Civil Engineering. Professor RIDDICK.

213. Astronomy.—Determination of azimuth, latitude and longitude, and time. Comstock's *Astronomy for Civil Engineers.* Two periods, second term. Required of Seniors in Civil Engineering. Professor RIDDICK.

214. Reinforced Concrete.—Turneaure & Maurer's *General Theory of Concrete and Steel Construction.* Problems in beams, columns, retaining walls, etc. Two periods, second terms. Required of Seniors in Civil Engineering. Professor MANN.

215. Mechanics of Materials.—Study of stresses in beams, columns, shafts, etc. Merriman's *Mechanics of Materials.* Three periods, first term. Required of Seniors in Civil Engineering. Professor RIDDICK.

216. Hydraulics.—Methods of measuring flow of streams, laws governing flow in pipes and conduits, determination of water-power in streams, testing of hydraulic motors. Text-book, Merriman's *Hydraulics.* Two periods, second term. Required of Seniors in Civil Engineering. Two periods, second term. Required of Seniors in Mechanical and Electrical Engineering. Professor RIDDICK.

217. Laboratory.—Tests of cement and other materials. Hydraulic measurements. Two periods, second term. Required of Seniors in Civil Engineering. Professor MANN, Mr. POOLE.

ARCHITECTURE.

220. Architecture.—Building materials, methods of constructing buildings, plans, specifications, bill of materials, estimate of cost, design of buildings. Lectures. Two periods, first term. Required of Sophomores in Civil Engineering. Mr. POOLE.

221. Architectural Drawing.—Drawings from a building already constructed, design of a dwelling, detail and perspective drawings. Two periods. Required of Sophomores in Civil Engineering. Mr. POOLE.

FOUR-YEAR COURSE IN MECHANICAL ENGINEERING.

The regular four-year course in Mechanical Engineering offers a training in the fundamental principles of design, construction, manufacture, and operation of all classes of standard and special machinery, and their economic application to railroads, steamships, mills, shops, factories, and power plants, as well as in the technical and executive management of the manufacturing and transportation industries. To this end the course of instruction is as broad as is possible to give in a technical school.

The course begins with a thorough training in mathematics, physics, and chemistry as a foundation for the appropriate technical work which is developed along several parallel lines. Applications of these fundamental sciences to the physical properties of the materials of construction, especially the metals and their practical manipulation, lead through the courses in mechanics, resistance of materials, shop processes, the materials-testing laboratory, drafting and kinematics, to the principles of design, which are fixed by application to the design of machinery for the execution of any kind of process in which machinery is either absolutely essential or more economical than corresponding hand execution of the same process. The principles underlying the performance of machinery are developed by courses in thermodynamics, mechanics, and hydraulics, with experimental laboratory demonstrations. The instruction in the performance, design, and manufacture of machine and power units in the classroom and laboratory, supplemented by visits to power plants and factories, is the basis of the work on the design of plants and mills.

To success in any one of these particular branches or phases of this profession a thorough technical training is absolutely indispensable, for it supplies the broad, general foundation, which must in its turn be supplemented by practical experience and by contact with the special line of work chosen.

II (b). The Four-year Course in Mechanical Engineering, leading to the degree of Bachelor of Engineering.

Freshman Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Mechanical Drawing, 230	2	2
Woodwork, 235	2	2
Forge Work, 236	--	2
Shop Lectures, 253	2	--
Algebra, 340	5	--
Geometry, 341	--	5
Physics, 280	4	4
Physical Laboratory, 282	1	1
Composition and Rhetoric, 360	3	--
American Literature, 361	--	3
Military Drill, 390	3	3
Totals	22	22

Sophomore Year.

Descriptive Geometry, 231	--	2
Mechanical Drawing, 232	--	2
Foundry, 237	2	--
Pattern-making, 238	2	--
Advanced Algebra, 343 / Trigonometry, 344	5	
Analytical Geometry, 345	--	5
Physics, 281	2	2
Physical Laboratory, 283	1	1
Inorganic Chemistry, 300	3	3
Inorganic Chemistry (laboratory), 301	2	2
Advanced Rhetoric, 362 / Public Speaking, 363	3	3
Military Drill, 390	3	3
Military Tactics, 391	1	1
Totals	24	24

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Steam Engines and Boilers, 241	3	3
Mechanics, 250	2	2
Machine Design, 233	2	2
Machine-shop, 239	2	2
Electrical Engineering, 285	2	2
Electrical Laboratory, 290	1	1
Analytical Geometry, 345	5	2
Calculus, 346	--	3-5
English Literature, 364	3	3
Military Drill, 390	3	3
Totals	23	23
Modern Languages (elective), 370, 372	3	3

Senior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Applied Mechanics, 251	3	--
Mechanics of Materials, 252	--	2
Machine Design, 234	3	2
Machine-shop Work, 240	2	2
Power Plants, 243	3	2
Gas Engines, 244	3	--
Industrial Engineering, 245	--	2
Heating, Ventilation, and Refrigeration, 247	--	3
Power -plant Design, 248	--	2
Steam Engineering Laboratory, 249	2	2
Calculus, 346	3	--
Hydraulics, 216	--	2
Elect three periods from the following:		
Military Drill, 390	3	3
Modern Languages, 370, 372	3	3
Journals, 365	2	--
Classics, 366	--	2
Economics, 367	1	1
Totals	22	22

MECHANICAL ENGINEERING EQUIPMENT.

Buildings.—The drawing rooms and recitation rooms are in the Mechanical Building; while the forge shop, foundry, wood shop, dry kiln, machine shop, and mechanical laboratory are in the new shop building, which has just been completed. This new building is of brick and has a floor space of 26,350 square feet. It contains the machinery from the old shops as well as many new machines. Each shop contains a demonstration lecture room of which use is made for recitation work. The Power Plant is also utilized for experimental engineering.

Drawing Rooms.—The drawing rooms are well lighted, heated and ventilated and are very spacious. They are equipped with

drawing tables, board and filing cabinets, models of valves, pumps, machine parts, etc., etc.

Forge Shop.—This is a well lighted and ventilated room of 35 by 72 feet. It is equipped with twenty double and two single forges thus accommodating forty-two students at one time. Blast is furnished from a Sturtevant blower. The shop is equipped with two emery and two buffing wheels; a Buffalo Forge Company's hand drill; a down-draft exhaust system operated by a 120-inch Sturtevant exhaust fan, for removing smoke and gases from the fires; anvils, a power hammer, and all necessary hand tools, all of which is new equipment. There is a large tool room and office; and there are raised seats for lecture work.

The Foundry.—This will accommodate about forty students at one time. The floor is 35 by 77 feet, and the equipment consists of a Northern Engineering Works 36-inch cupola, with blast by a Buffalo blower. There is also a crucible brass furnace of good size. For moulding machines the foundry is equipped with an Arcade squeezer and a Model moulding machine, both made by the Arcade Manufacturing Company, and a Pridmore mould machine made by Henry Pridmore. A Cadet core oven and all necessary tools for bench and floor work complete the equipment.

Wood shop.—This is a very large room, 50 by 118 feet, and has all the conveniences of a modern shop. It contains the following machines besides the new ones which have been added with the new building: fifteen double carpenters' benches which accommodate thirty students, and all necessary tools for each bench; thirty 12-inch turning lathes, each lathe being fully equipped with turning tools; a rip and a cut-off saw bench, foot feed with dado attachment; a 40-inch surface planer; a 12-inch and a 6-inch hand jointer or buzz planer; a universal boring machine; a 6½-inch tenoning machine with cope heads; a 6-inch sash and blind sticker; a 34-inch band saw; an iron frame self-contained jig-saw; a sharper or edge-moulding machine, with a very complete set of moulding cutters; a chain mortiser; a dove-tailing machine; a belt-sanding machine; a hollow chisel mortiser; a planer knife grinder; a 38-inch grind stone; a wood-trimmer; an adjustable miter box; a steam glue-heater, and a large assortment of screw and bar clamps, both iron and wooden. The shop also contains an up-to-date tool room.

Dry Kiln.—This is a large room underneath the wood shop, and is used for storing and drying lumber. It has a cement floor and is heated by steam pipes.

Machine Shop.—This well equipped shop is 50 by 100 feet, and contains many new machines. It has a cement floor and large win-

dows, which make it an ideal room for machine work. There are the following machines: A 16-inch Davis & Egan lathe, with 10-foot bed; a 14-inch Windsor lathe with 5-foot bed; a 14-inch Putnam lathe with 4-foot bed; a 14-inch Champion lathe with 6-foot bed; a 14-inch Flather lathe with a 6-foot bed; three 14-inch lathes with 6-foot beds (built in College shops by students), a 26-inch by 44-inch by 12-foot bed McCabe double spindle lathe; a 14-inch Champion lathe; a 12-inch Seneca Falls lathe; a 16-inch Gould & Eberhard shaper; an 18-inch Prentiss shaper; a 24-inch upright Bickford drill press; a 32-inch American drill press; a Brown & Sharpe Universal milling machine, with all attachments; a 20-inch by 5-foot Pease planer; one large and one small emery tool grinding machine; a Greenwich arbor press; an electric center grinder; a Whiton centering machine, and a twist drill grinder. The machines have full equipment of chucks, rests and tools. The benches are well provided with vises.

Mechanical Laboratory.—This room is 45 by 95 feet, and is well equipped with the necessary apparatus for performing commercial tests on the various mechanical engineering problems.

For general laboratory there are various measuring instruments, thermometers, pyrometers, steam engine indicators, planimeters, tachometers, pressure and vacuum gages, a Crosby gage tester, steam calorimeters, both throttling and separating, an Emerson fuel calorimeter for testing coal and oils, an apparatus for testing oil for flash point, burning point and viscosity, an apparatus for flue gas analysis, both indicating and recording, and apparatus rigged for making calibration tests on thermometers, indicator springs and steam gauges.

For the work in steam engineering there are the following: A 40-horsepower Skinner automatic engine, to which is connected a Wheeler surface condenser with a Blake air pump; a 25-horsepower steam engine, a 10-horsepower engine, a 10-horsepower De Laval steam turbine, and apparatus arranged for making tests on injectors, pumps, flow of fluids through orifices and nozzles. Besides the above, which are used only for experimental purposes, the College Power Plant, with a 100-horsepower Skinner automatic steam engine, a 135-horsepower De Laval steam turbine, with all auxiliaries, as well as the boiler equipment, consisting of two 200-horsepower Atlas and two 75-horsepower Babcock & Wilcox water tube boilers, are all available for tests.

For making efficiency and economy tests on gasoline and oil engines, the following equipment is available: One 11-horsepower Foos gasolene engine; one 3-horsepower International Harvester

Company gasolene engine; one 2-horsepower McVicker gasolene engine; one 3-horsepower, 2-cycle, Detroit oil engine; one 16-horsepower Ford Automobile engine; a one-horse power engine, built in shops, and a 5-horsepower De La Vergne oil engine. To this collection it is hoped to add one or two more oil engines in the near future.

For the course in testing of materials the following are available: A 50,000-pound Riehle automatic testing machine, arranged for tensional, compression and transverse tests; a 15,000-pound Olsen testing machine for small specimens, and necessary auxiliary apparatus, such as micrometers, extensometers, etc., for obtaining results of the various tests.

Subjects of Instruction.

230. Mechanical Drawing.—Instruction in care and use of instruments; lettering, geometrical drawing; projection drawing; isometric and cabinet projections; drawings from working sketches of machine details; tracing; blueprinting; elements of descriptive geometry; cylinders; cones; prisms; intersections and development; miscellaneous problems. Two periods. Required of Freshmen in Engineering. Mr. COBURN.

Note.—Each student will be required to furnish, at his own expense, the following outfit. To insure uniformity in grade of instruments and other supplies, the department keeps for sale practically at cost, the articles named below. These may be purchased elsewhere, but must be approved by the department. Estimated cost of outfit, $12 to $15.

Text-book.
Drawing board, 22 by 32 inches.
T-square, 30 inches.
60° triangle, 9 inches, transparent.
45° triangle, 7 inches, transparent.
12-inch triangular architect's scale.
4 H pencil. H or F pencil.
Erasers for ink and pencil.
Penholder with fine points.
Pencil sharpener.

Instrument set consisting of:
6-inch compass with pen, pencil, and lengthening bar.
5½-inch dividers with hairspring adjustment.
3-inch bow dividers, 3-inch bow pencil, 3-inch bow pen.
5½-inch ruling pen; 4½-inch ruling pen.

231. Descriptive Geometry.—General definitions; third angle; representation of points, lines and planes; profile plane; projected views; line and plane essentials; relations of points, lines and planes in space; intersection of lines and planes; curved surfaces; development of surfaces; plane sections of solids. During the term many practical problems are given for solution and construction. Two periods, second term. Required of Sophomores in Mechanical and Electrical Engineering. Prerequisite, Mechanical Drawing 230. Professor SATTERFIELD, Mr. BRIGGS.

232. Mechanical Drawing.—Making drawings and calculations setting forth the general principles of Descriptive Geometry. The design of cams to give specified motions and problems in elementary machine design. Two periods, second term. Required of Sophomores in Mechanical and Electrical Engineering. Prerequisites, Mechanical Drawing 230. Mr. BRIGGS.

233. Machine Design.—A study of materials used in machine construction; analysis of stresses in machine parts; design of machine parts, considering them as compression, tension, or torsion members; modification of the above to suit practice and for the sake of general appearance. Design of simple machines, such as shears, punches, air hoists, riveters, etc., all calculations to be made in standard form and handed in with the assigned problem. Two periods throughout the year. Required of Juniors in Mechanical and Electrical Engineering. Prerequisites, Descriptive Geometry 231, and Mechanical Drawing 230 and 232. Assistant Professor ELLIS.

234. Machine Design.—Advanced Machine Design based on the thermal and mechanical problems involved in the design of a steam engine for power, economy and regulation. The students are given the requirements of the engine—such as speed, regulation and point of cut-off for required horsepower—and are required to make calculations for the same; draw all theoretical diagrams from the ideal indicator card to the rectified tangential pressure diagrams; valve diagrams, showing different events of valve; details of cylinder, frame, fly-wheel, governor, etc. Three periods, first term; two periods, second term. Required of Seniors in Mechanical Engineering. Prerequisites, Machine Design 233, Mechanics 250, and Heat Engines 241. Assistant Professor ELLIS.

235. Woodwork.—The use and care of the ordinary woodworking bench tools. Exercises in laying out and working from drawings, sawing, planing, and making of joints. The use and care of woodworking machines such as saws, planers, shapers, dovetailers,

tenoners, etc. Exercises in wood-turning. Work on repairs about the College. Two periods. Required of Freshmen and first-year Short Course Men. Mr. WHEELER.

236. Forge Work.—Treatment of iron and steel, the uses of the fuller, swage, punch and set hammer; drawing and upsetting; butt, scarf, and jump welding; making of forge and machine shop tools, with tempering of tool steel; exercises on power hammer. Special work on equipment and repairs about the College. Required of Freshmen and first-year Short Course Men. Two periods, recitations and exercises, second term. Mr. HURTT, Mr. NICHOLS.

237. Foundry.—Recitations and exercises in foundry work, including working condition of the sand, use and care of tools, moulding, core-making, management of cupola and crucible furnaces in iron and brass melting. Required of Sophomores in Mechanical and Electrical Engineering and second-year Short Course Men. Two periods, first term. Mr. HURTT, Mr. NICHOLS.

238. Pattern-making.—A study of pattern-making in its relation to moulding; the practical construction of patterns to prevent warping and twisting; the making of special patterns; cores and core-boxes; introducing draft, shrinkage, finish, and the appliances and usage of modern pattern work. Required of Sophomores in Mechanical and Electrical Engineering. Two periods, first term. Prerequisite, Woodwork 235. Mr. WHEELER.

239. Machine-shop Work.—Bench and machine work. Exercises in chipping and filing. Exercises in lathe work, boring, reaming, drilling, planing, milling and shaper work. Two periods. Required of Juniors in Mechanical Engineering. One period. Required of Juniors in Electrical Engineering. Mr. PARK.

240. Machine-shop Work.—Making the parts of some machine, or of an engine. Making tools, such as taps and reamers. Laying out work. Working from drawings, duplicate and interchangeable parts. Working to standard gages. Two periods. Required of Seniors in Mechanical Engineering. Mr. PARK.

241. Heat Engines.—A study of elementary thermodynamics, properties of steam, calorimeters and mechanical mixtures, combustion and fuels, boilers and boiler auxiliaries, steam engines, including types and details, valve gears, and governors; layout and necessary calculations for steam-engine testing, condensers and air pumps, steam turbines, gas engines, and economy of heat engines. Three periods throughout the year. Required of Juniors in Mechanical Engineering. Two periods throughout the year. Required of Juniors in Electrical and Textile (435) Engineering.

Prerequisites, Physics 281 and Advanced Algebra 343. Professor SATTERFIELD, Mr. PARK, Mr. VAUGHAN.

243. Mechanical Engineering of Power Plants.—A critical study of steam boilers and furnaces, of boiler-room accessories, of coal and ash handling, and of piping, steam engines, steam turbines, pumps, condensers, traps, separators, etc. Special attention is paid to the conditions under which different equipment would be used, and to the selection of the apparatus, also to the cost of power, depreciation, repairs, etc. Three periods, first term; two periods, second term. Required of Seniors in Mechanical Engineering. Professor SATTERFIELD.

244. Gas Engines.—Thermodynamics of the gas engine, theoretical comparisons of various types of internal combustion engines. Combustion, including combining weights and volumes, heating value, air required, etc. Gas-engine fuels; solid, liquid, and gas. Gas producers, carburetors, and vaporizers. The fuel mixture, pressure, and temperature resulting from combustion. Modern types of internal combustion engines, auxiliaries, including ignition, starting apparatus, and mufflers; regulation, efficiency, and economy. Three periods, first term. Required of Seniors in Mechanical Engineering. Prerequisites, Heat Engines 241 and Mechanics 250. Mr. VAUGHAN.

245. Industrial Engineering.—A study of the origin and principles of the Industrial System; the nature and distribution of expense; labor; materials, etc. Two periods, second term. Required of Seniors in Mechanical Engineering. Professor SATTERFIELD.

247. Heating, Ventilation, and Refrigeration.—This subject treats of the various methods of heating, such as by open fires, hot air, steam and hot water; of the proper ventilation of all types of buildings; of methods of utilizing the waste heat from power plants for the heating of buildings; of the various types of ice-making and refrigerating machinery, and their installation, care, and management; and of the cost of heating and cooling. Three periods, second term. Required of Seniors in Mechanical Engineering. Professor SATTERFIELD.

248. Power Plant Design.—A study of the selection, location, and proportioning of the essential details of steam and gas power plants, such as engines, boilers, pumps, piping, condensers, feed water heaters, chimneys, etc. The course consists of the study of references, lectures on the subject, and the drawing of plans of plants showing all details. Two periods, second term. Required of Seniors in Mechanical Engineering. Prerequisite, Heat Engines 241. Assistant Professor ELLIS, Mr. VAUGHAN.

249. Steam Engineering Laboratory.—Calibration of the various instruments used in performing tests on various mechanical engineering problems. Practice in the use of calorimeters, both steam and fuel; indicators, planimeters, etc. Testing of lubricants for flash point, burning point, and viscosity. Checking the formulas used in determining the flow of fluids through orifices and nozzles. Efficiency tests of boilers, steam engines, injectors, pumps, and gasoline and oil engines. Testing of materials used in engineering construction. Two periods throughout the year. Required of Seniors in Mechanical Engineering. One period throughout the year. Required of Seniors in Electrical Engineering. Prerequisites, Heat Engines 241 and Mechanics 250. Mr. VAUGHAN, Mr. WHEELER.

250. Mechanics.—Nature and measurement of forces, moments, conditions of equilibrium, moment of inertia, laws of impact, constraining and accelerating forces, momentum and impact, work, power, friction, application of principles to various engineering problems. Elasticity and mechanics of fluids. Preparatory to Applied Mechanics 251. Two periods throughout the year. Required of Juniors in Mechanical and Electrical Engineering. Prerequisites, Physics 280, Algebra 340, and Trigonometry 344. Mr. VAUGHAN.

251. Applied Mechanics.—A study of the laws of equilibrium and motion as applied to a particle or to a rigid body; analytic treatment of stresses in structures; center of gravity, moment of inertia, energy and work, friction and dynamics of machinery. Three periods, first term. Required of Seniors in Mechanical and Electrical Engineering. Prerequisite, Mechanics 250. Assistant Professor ELLIS.

252. Mechanics of Materials.—A study of the effects of loads and forces in engineering structures by use of the stress-strain diagram. Determination of ultimate stress and elastic limit of materials, with investigation for maximum and minimum bending moment and shear. Torsion and its application to shafting, with theories as to elastic limit and failure. Two periods, second term. Required of Seniors in Mechanical and Electrical Engineering. Prerequisites, Mechanics 250 and 251. Assistant Professor ELLIS.

253. Shop Lectures.—A series of lectures and recitations on the construction and use of woodworking tools and machinery; on the lumbering industry and preparation of lumber; on foundry and forge practice; on pattern-making; on shop equipment in general, laborsaving devices, etc., etc. Required of Freshmen in Civil, Electrical and Mechanical Engineering. Two periods, first term. Professor SATTERFIELD and Assistants.

MECHANIC ARTS.

In order to meet the necessities of young men who wish to prepare themselves for the industrial arts rather than for industrial science and art, the following two-year course in Mechanic Arts is offered.

This course does not lead to graduation, and it is not, in any sense, intended as a preparatory course for the regular four-year classes. It is designed simply to help young men better fit themselves, by a year or two of practical work under competent and interested supervision, for their chosen sphere of industrial activity.

Those students whose inclinations, limitations, or necessities lead them to take this course will be carefully drilled in the handicraft of their art, and in the application of elementary science to the shop, drawing-room, and power plant.

II (c). TWO-YEAR COURSE IN MECHANIC ARTS.

First Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Mechanical Drawing	3	3
Woodwork	2	2
Forge Work	--	2
Shop Lectures	2	--
Mechanical Technology	--	2
Physics	2	2
Algebra	5	5
Plane Geometry	--	
English	3	3
Military Drill	3	3
Totals	20	22

Second Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Machine Drawing	3	3
Machine-shop Work	3	3
Power Machinery	3	3
Algebra	5	--
Geometry	--	5
English	3	3
Drill	3	3
Elective work:		
Machine Shop or Drawing	2	2
Pattern Work	--	2
Foundry	2	--
Totals	24	24

Subjects of Instruction.

First Year.

Mechanical Drawing.—Instruction in care and use of instruments; lettering, geometrical drawing; projection drawing; isometric and cabinet projections; drawing from working sketches of machine details; tracing; blueprinting; elements of Descriptive Geometry; cylinders; cones; prisms; intersections and developments; miscellaneous problems. Three periods. Mr. Coburn.

Note.—Each student will be required to furnish at his own expense the following outfit. To insure uniformity in grade of instruments and other supplies, the department keeps for sale, at practically cost, the articles named below. These may be purchased elsewhere, but must be approved by the department. Estimated cost of outfit, $12 to $15.

Text-book.
Drawing board 21 by 30 inches.
T-square 30 inches.
60° triangle 9 inches, transparent.
45° triangle 7 inches, transparent.
12-inch triangular architect's scale.
Irregular curve.
4 H pencil. H or F pencil.

Erasers for ink and pencil.
Penholder with fine points.
Pencil sharpener.

Instrument set consisting of:

6-inch compass with pen, pencil, and lengthening bar.
5½-inch dividers with hairspring adjustment.
3-inch bow dividers, 3-inch bow pencil, 3-inch bow pen.
5½-inch ruling pen, 4½-inch ruling pen.

Woodwork.—The use and care of the ordinary woodworking bench tools. Exercises in laying out and working from drawing; sawing, planing, and making of joints. The use and care of woodworking machines, such as saws, planers, shapers, dovetailers, tenoners, etc. Exercises in wood-trimming. Work on repairs about the College. Two periods. Mr. WHEELER.

Forge Work.—Treatment of iron and steel, the uses of the fuller, Ewage, punch and set hammer; drawing and upsetting; butt, scarf, and jump welding; making of forge and machine shop tools, with tempering of tool steel; exercises on power hammer. Special work on equipment and repairs about the College. Two periods, second term. Mr. NICHOLS, Mr. HURTT.

Mechanical Technology.—Classification and use of woodworking and forging tools and machines. Methods of woodworking and forging. Arrangement, sizes, and care of belting and shafting; elementary power problems, steel-making, etc. Two periods, second term. Professor SATTERFIELD.

Algebra.—Wells' *New Higher Algebra.* A thorough treatment of the fundamental conceptions and operations of Elementary Algebra, embracing the subjects of factoring, fractions, simple and simultaneous equations, involution, evolution, theory of exponents and radicals. Five periods, first and second terms to March 15. Mr. HARRELSON, Mr. BLACKBURN, Mr. HALES.

Plane Geometry.—Wentworth's *Plane and Solid Geometry.* Three books of Plane Geometry, including numerous original exercises. Five periods, March 15 to end of second term. Mr. HARRELSON, Mr. BLACKBURN, Mr. HALES.

Short Course English.—This is a thoroughly practical course in the elements of grammar and of composition, especially spelling, sentence and paragraph structure, and letter-writing. Some reading is done in class, and supplementary reading is assigned for private study. Three hours a week. Required of first-year students. Mr. FARRELL.

Physics.—Properties of matter, fundamental units, British and metric standard measures, mechanics, liquids, gases, heat, introduction to light and sound. Two periods. Mr. McDOWELL.

Shop Lectures.—A series of lectures and recitations on the construction and use of woodworking tools and machinery; on the lumbering industry and preparation of lumber; on foundry and forge practice; on pattern-making; on shop equipment in general; labor-saving devices, etc., etc. Two periods, first term. Professor SATTERFIELD and Assistants.

Second Year.

Foundry.—Recitations and exercises in foundry work, including working condition of the sand, use and care of tools, moulding, core-making, management of cupola and crucible furnaces in iron and brass melting. Elective for second year. Two periods, first term. Mr. NICHOLS, Mr. HURTT.

Machine Drawing.—Sketching and drawing of machine parts and machines. Detail working drawings. Tracing and blueprinting. Three periods. Prerequisite, first year Mechanical Drawing. Assistant Professor ELLIS.

Machine-shop Work.—Bench and machine work. Exercises in chipping and filing. Exercises in lathe work, boring, reaming, drilling, planing, milling, and shaper-work. Three periods. Mr. PARK.

Power Machinery.—Descriptive study of the machinery of steam power plants, engines, boilers, condensers, pumps, steam turbines, piping, care and management, study of gas and oil engines. Combustion of fuels. Indicators; indicated, brake, and boiler horse-power problems. Three periods. Mr. PARK.

Pattern-making.—A study of pattern-making in its relation to moulding; the practical construction of patterns to prevent warping and twisting; making of special patterns, cores, and core-boxes, introducing draft, shrinkage, finish, and the appliances and usages of modern pattern work. Prerequisite, Woodwork. Elective for second year. Two periods, second term. Mr. WHEELER.

Algebra.—Wells' *New Higher Algebra.* Begin with quadratic equations and complete summation of series, embracing ratio and proportion, variation, the progressions, the binomial theorem, undetermined coefficients, logarithms, compound interest and annuities, permutations, combinations, and continued fractions. Five periods, first term. Prerequisite, first-year Algebra. Professor YATES, Mr. HARRELSON, Mr. BLACKBURN, Mr. TUCKER, Mr. HALES.

Plane and Solid Geometry.—This course begins with the fourth book, completes Solid Geometry, and includes numerous original

exercises. Five periods, second term. Prerequisites, First-year Geometry and a term standing of 60 per cent or more on the work of the first term. Professor YATES, Mr. HARRELSON, Mr. BLACKBURN, Mr. TUCKER, Mr. HALES.

Composition and Rhetoric.—After a review of grammatical principles, especial attention is given to the selection of subjects and the planning of essays, to the choice of words, and to the structure of sentences and paragraphs. Standard poetry and prose are read in class, and additional books are assigned for parallel reading. Frequent short themes are written. Three periods. Required of second-year students. Mr. PRATT, Mr. FARRELL.

FOUR-YEAR COURSE IN ELECTRICAL ENGINEERING.

The four-year course in Electrical Engineering is planned for those who wish a thorough practical preparation for following this profession. Only the most thorough training in the fundamental laws and principles of electricity and magnetism will suffice as a preparation for this branch of engineering in which the art is advancing so rapidly. This training is given by a careful study of text-books and co-ordinated work in the various laboratories. The department, as will be seen from the equipment described below, is well supplied with dynamos, motors, transformers, and other electrical machines, and with testing instruments and apparatus of all descriptions.

ELECTRICAL ENGINEERING EQUIPMENT.

The course in Electrical Engineering is accompanied by work in the laboratory and the designing-room. The department occupies the western portions of the basement and of the first floor of Winston Hall. On the first floor are the classrooms, offices, library, draftingroom, and instrument laboratory. The classrooms are well equipped for demonstrating the principles studied in the text-books. The designing-room is suitably furnished for its purpose and the instrument laboratory is supplied with standardizing apparatus and instruments, provided for quickly determining the accuracy of all the apparatus used in actual measurements and also for advanced measurements in electricity and magnetism. This room is well supplied with power, current from single-, two- and three-phase sources being available, as well as direct current from the power-house or storage batteries.

In the basement are located the dynamo laboratory, the photometric laboratory, instrument room, the department's repair shop, and rooms for high-tension apparatus, storage battery, and stores.

The dynamo laboratory is a room 90 x 30 feet. Its equipment consists of direct and alternating current dynamos and motors of practically all types and ranging in size from one to thirty-seven kilowatts, the aggregate capacity being about two hundred kilowatts in machines and seventy-five kilowatts in transformers. Power is supplied to the laboratory by means of three independent circuits running from the College power-house. A full complement of ammeters, voltmeters, wattmeters, phasemeters, tachometers, rheo-

stats, condensers, inductances, and other apparatus used in the study of electrical machines is provided. The equipment is arranged so that power is conveniently supplied to a number of independent stations, at each of which a group of students can conduct an experiment without being affected by the work of other groups.

POWER-HOUSE.

The College power-house is also available for student instruction. It is a brick building containing an excellent equipment of modern type. This consists of one seventy-five kilowatt, six-hundred volt, three-phase, revolving field alternator directly connected to a high-speed engine; two fifty-kilowatt, three-hundred volt, three-phase revolving field alternators, driven by a DeLaval steam turbine, with direct-driven exciter; a ten-kilowatt, direct-connected, direct current generator, a motor-generator exciter set; and a completely equipped switchboard.

The City of Raleigh is unusually well situated for students of Electrical Engineering. The local power company has a fine modernized steam turbine-driven plant which operates in conjunction with the water-power plant at Buckhorn Falls, on the Cape Fear River, from which point the power is transmitted at sixty thousand volts. This company also owns the large plant at Blewetts Falls, from which power is transmitted at one hundred and ten thousand volts. This line crosses the College property, and has an open-air transformer and meter station located within easy reach.

LIBRARY.

This department has a small but growing library and takes a number of the leading electrical journals, all of which are at all times available for the students' use.

PHYSICS.

A thorough training in the elements of Physics is necessary as a preparation for entering any engineering profession. The course in Physics is planned with this specific object in view. Instruction in the classroom is accompanied by laboratory courses laid out so as to illustrate the principles taught in the former, and also so as to train the student to observe accurately and to give him considerable facility in the manipulation of scientific instruments. During the first year the subject is presented in an elementary manner. In the second year a more thorough study of general physics is made.

Brief courses in Physics are given for students in Agriculture and Textile Industry and an elementary course is given to students in the short courses in Mechanic and Textile Arts, and Agriculture.

Equipment.

The laboratories and classrooms for the work in Physics are in the basement of Holladay Hall, practically the whole floor being given up to this department. There are two large, well-equipped classrooms with facilities for giving experimental lectures; and there are two large, well-lighted laboratories, one for the first-year course in Physics and the other for advanced physical measurements. Special attention has been paid to the equipment of these laboratories, the object being to enable the student to determine from his actual experience the truth of the principles which he learns in the classroom.

II (d). The Four-year Course in Electrical Engineering, leading to the degree of Bachelor of Engineering.

Freshman Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Elementary Physics, 280	4	4
Physical Laboratory, 282	1	1
Mechanical Drawing, 230	2	2
Woodwork, 235	2	2
Forge Work, 236	--	2
Shop Lectures, 253	2	--
Algebra, 340	5	--
Geometry, 341	--	5
Composition and Rhetoric, 360	3	--
American Literature, 361	--	3
Military Drill, 390	3	3
Totals	22	22

Sophomore Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Physics, 281	2	2
Physical Laboratory, 283	1	1
Descriptive Geometry, 231	2	--
Mechanical Drawing, 232	--	2
Advanced Algebra, 343	5	--
Trigonometry, 344		
Analytical Geometry, 345	--	5
Inorganic Chemistry, 300	3	3
Inorganic Chemical Laboratory, 301	2	2
Foundry, 237	2	--
Pattern-making, 238	2	2
Advanced Rhetoric, 362	3	3
Public Speaking, 363	--	
Military Tactics, 391	1	1
Military Drill, 390	3	3
Totals	24	24

Junior Year.

Electrical Engineering, 284	3	3
Electrical Engineering Laboratory, 289	2	2
Steam Engines and Boilers, 241	2	2
Machine-shop Work, 239	1	1
Machine Design, 233	2	2
Mechanics, 250	2	2
Analytical Geometry, 345	5	2
Calculus, 346	--	3-5
English Literature, 364	3	3
Military Drill, 390	3	3
Modern Languages, 370, 372 (elective)	3	3
Totals	23	23

Senior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Alternating Currents, 286	3	3
Electrical Application, 287	2	2
Electrical Transmissions, 288	--	2
Electrical Engineering Laboratory, 291	2	2
Electrical Design, 292	2	2
Applied Mechanics, 251	3	--
Mechanics of Materials, 252	--	2
Steam Engineering Laboratory, 249	1	1
Calculus, 346	3	--
Hydraulics, 216	--	2
Journals, 365	2	--
Classics, 366	--	2
Economics, 367	1	1
Elect one subject from the following:		
Military Drill, 390	3	3
Modern Languages, 370, 371, 372	3	3
Totals	22	22

Subjects of Instruction.

280. Physics.—Introductory course in Physics, planned to give the student a broad view of the field covered by this fundamental science for all engineering work. It includes the study of the fundamental units, the English and Metric systems of measures, definitions of force, work, power, lines of motion, principles of machines, mechanics of fluids, heat, sound, light, electricity and magnetism. Text-book, Milliken & Gale's *A First Course In Physics.* Four periods. Required of Freshmen in Engineering and Chemistry. Associate Professor Heck, Mr. Pritchett.

281. Sophomore Physics.—A more advanced and more thorough course in Physics, arranged particularly to meet the needs of engineering students. Particular attention is paid to Mechanics, fluids, gases, heat, electricity and magnetism. Two periods. Required of Sophomores in Engineering and Chemistry. Prerequisite, Physics 280. Associate Professor Heck, Mr. Pritchett.

282. Physical Laboratory.—In the shops the engineering student handles and works with the materials of construction. In the laboratory he is taught to measure and observe. The course here is arranged to make him familiar through actual observation with physical phenomena, and teach him how these are measured and controlled. It includes practice in handling units in the British and Metric systems, measurements, composition and resolution of forces, the lever, the inclined plane, the pendulum, density of materials, and specific gravity, the thermometer, heat and its effect on materials, sound, laws of strings, laws of lenses and mirrors, magnetism and electricity. One period. Required of Freshmen in Engineering and Chemistry. Mr. McDOWELL.

283. Sophomore Physical Laboratory.—A more advanced course in physical measurements accompanying classroom instruction in this subject. It includes a study of the theory of measurements upon which all engineering work is based. More care and greater accuracy, and more elaborate reports are required in this course than in the Freshman laboratory. The work is intended not only to impress the truths and principles taught in the classroom but give some facility in the use of scientific instruments and training in accurate observation. One period. Required of Sophomores in Engineering and Chemistry. Prerequisite, Physical Laboratory 282. Associate Professor HECK, Mr. PRITCHETT.

284. Direct Current Machinery and Apparatus.—A thorough study is made of the production and utilization of direct currents, beginning with the theory of the magnetic circuit, electromagnetic induction, electrical measurements, storage batteries, dynamos and motors, operation and care of direct current machinery, electrical distribution and lighting. Text-book, Franklin & Esty's *Elements of Electrical Engineering.* Three periods, through the year. Required of Juniors in Electrical Engineering. Prerequisites, Subjects 281, 342, 343 and 344. Professor BROWNE.

285. Electrical Engineering.—An introductory course for students in other engineering departments, consisting of the study of the apparatus used in the production, distribution, and utilization of electrical power. Required of Juniors in Mechanical Engineering. Text-book, Timbie's Elements of Electricity. Two periods. Prerequisites, Subjects 281, 342, 343 and 344. Professor BROWNE.

286. Alternating Currents and Machinery.—A study of the flow of periodic currents in circuits containing resistance, inductance, and capacity; the construction, operation, and performance of alternating current machinery. Text-book, Franklin & Esty's *Alternating*

Currents. Three periods. Required of Seniors in Electrical Engineering. Prerequisites, Subjects 284, 345, 346. Professor BROWNE.

287. Industrial Applications of Electricity.—A detailed study is made of the many industrial applications of electricity, such as electric traction, the electric drive in mill and factory, electric power stations, industrial electro-chemistry and electro-metallurgy, telegraphy, and telephony. Two periods. Required of Seniors in Electrical Engineering. Prerequisites, Subjects 284 and 289. Professor BROWNE, Assistant Professor MCINTYRE.

288. Electrical Transmission of Power.—A practical study of the problems involved in the transmission of power from the generating station to the consumer; hydro-electric developments; high-tension transmission. Required of Seniors in Electrical Engineering. Text-book, Ferguson's *The Elements of Electrical Transmission.* Two periods, second term. Prerequisites, Subjects 284, 289. Professor BROWNE.

289. Direct Current Laboratory.—This study accompanies that of direct current machinery. It includes use of standardizing apparatus, calibration of instruments, advanced electric and magnetic measurements and the operation and testing of direct-current dynamos and motors. Text-book, Sever & Townsend's *Laboratory and Factory Tests*, supplemented by notes. Two periods. Required of Juniors in Electrical Engineering. Prerequisites, Subjects 281 and 283. Assistant Professor MCINTYRE, MR. PRITCHETT.

290. Electrical Engineering Laboratory.—This course accompanies Study 285. Instruction is given in the care and operation of direct and alternating current machinery. Required of Juniors in Mechanical Engineering. One period. Text-book, Sever's *Direct Current Tests.* Prerequisites, Subjects 281, 283 Assistant Professor MCINTYRE.

291. Advanced Dynamo Laboratory.—This study is taken up simultaneously with the study of alternating currents. It includes practice with alternating currents, measurements of inductance and capacity, experimental study of transformers, alternating current generators and motors, advanced methods of testing electrical apparatus, and shop testing. Text-book, Sever & Townsend's *Laboratory and Factory Tests*, supplemented by notes. Two periods. Required of Seniors in Electrical Engineering. Prerequisites, Subjects 284 and 289. Assistant Professor MCINTYRE.

292. Electrical Design.—An introductory course in the designing of electrical apparatus, taking up the design of rheostats and heat-

ing devices, controllers, electromagnets, transformers, direct and alternating current dynamos and motors. Two periods. Required of Seniors in Electrical Engineering. Prerequisite, Subject 284. Professor BROWNE.

COURSE IN CHEMISTRY.

In harmony with the general purposes for which the College was founded, the course in Chemistry is arranged to prepare young men for careers in that department. To this end the training given in general, organic, and analytical chemistry is supplemented by instruction in technical chemical analysis and in applied chemical subjects. The kindred scientific subjects of Biology and Physics are taught, together with the cultural studies included in the other courses.

The chemical laboratories of the North Carolina Department of Agriculture and of the North Carolina Agricultural Experiment Station afford the student an opportunity to keep in touch with the methods of research in this department of agricultural science.

The State Museum is open to the public each day, and among other things contains a very excellent collection of the State's minerals, ores, and building stones.

There are in the city of Raleigh and its vicinity several manufacturing plants to which, through the courtesy of the owners, the students in chemistry, in company with the teaching staff of this department, make visits each year. These include plants for the manufacture of illuminating gas, sulphuric acid, fertilizers, and ice; for the extraction of cotton-seed oil, and for the dyeing of cotton goods.

CHEMICAL EQUIPMENT.

The Chemical Department occupies the whole of the second floor of Winston Hall. There are two classrooms for about thirty students each and one classroom for ninety students. The classrooms are well lighted, have very convenient lecture tables and settees with arm-rests for taking notes.

The laboratory for inorganic chemistry can accommodate three hundred and thirty-six students, the laboratory for analytical chemistry ninety-six students, and for organic chemistry twenty students. A small laboratory has been set aside for special work. The laboratories are fitted up with conveniently arranged desks and hoods, each of which has the necessary water and gas connections. The balance room is located between the analytical and organic laboratories.

The department also has a dark room for photographic work, fire-proof rooms for combustion, ample stockrooms and a preparation room.

The Chemical library, containing an excellent collection of reference books and complete sets of the leading chemical journals, occupies a room convenient to the laboratories for the upper classmen.

The members of the instructing staff have offices adjacent to the laboratories.

II (e). The Four-year Course in Chemistry, leading to the degree of Bachelor of Science.

Freshman Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Inorganic Chemistry, 300	2	2
Inorganic Chemistry (laboratory), 301	1	1
Physics, 280	4	4
Physical Laboratory, 282	1	1
Botany, Elementary, 320	3	3
Algebra, 340	5	--
Geometry, 341	--	5
Composition and Rhetoric, 360	3	--
American Literature, 361	--	3
Military Drill, 390	3	3
Totals	22	22

Sophomore Year.

Analytical Chemistry, Qualitative, 304	3	3
Physics, 281	2	2
Physical Laboratory, 283	1	1
Geology	2	--
Bacteriology	--	3
Advanced Algebra, 343	1	--
Trigonometry, 344	4	--
Analytical Geometry, 345	--	5
German, 370	3	3
Advanced Rhetoric, 362	3	3
Public Speaking, 363	--	
Military Tactics, 391	1	1
Military Drill, 390	3	3
Totals	23	24

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Organic Chemistry, 302	2	2
Organic Chemistry (laboratory), 303	3	3
Analytical Chemistry, Quantitative, 305	4	4
Physical Chemistry, 307	3	3
Soils, 331	3	3
German, 370	3	3
English Literature, 364	3	3
Military Drill, 390	3	3
Totals	24	24

Senior Year.

Agricultural Chemistry, 308	2	2
Physical Chemistry, 307	3	3
Analytical Chemistry, Quantitative, 305	8	8
Journals, 365	2	--
Classics, 366	--	2
Elect seven periods from the following:		
Economics, 367	3	3
Military Drill, 390	3	3
Advanced Bacteriology, 322	3	3
Soils, Advanced, 332	3	--
Feeds, 335	--	3
Fertilizers, 333	--	2
Drawing, 230	2	2
Analytical Geometry, 345	5	2
Calculus, 346	--	3
Other Subjects if approved by the Professor of Chemistry.		
Totals	22	22

SUBJECTS OF INSTRUCTION.

300. Inorganic Chemistry.—McPherson & Henderson's *General Chemistry.* The common elements and their principal compounds are studied, together with some of the fundamental principles of the science. The lectures are illustrated by experiments and the exhibition of specimens. Three periods. Required of Sophomores in Engineering. Two periods, required of Freshmen in Chemistry. Professor WITHERS, Doctor WILLIAMS, Mr. FETZER.

301. Inorganic Chemistry.—Laboratory work. McPherson & Henderson's *Chemical Experiments.* The student performs under the eye of the instructor experiments designed to illustrate and emphasize the work of the classroom. Two periods, required of Sophomores in Engineering. One period, required of Freshmen in Chemistry. Doctor NOWELL, Mr. SHERWOOD.

302. Organic Chemistry.—Remsen's *Organic Chemistry.* The fundamental principles of organic chemistry and the more important compounds are studied. Two periods. Required of Juniors in Chemistry. Doctor NOWELL.

303. Organic Chemistry.—Laboratory Work. Orndorff's *Laboratory Manual.* The typical transformations and syntheses of the aliphatic and aromatic groups are taken up. The student thus becomes familiar with the reactions and properties of the more important organic compounds. Three periods. Required of Juniors in Chemistry. Doctor NOWELL.

304. Analytical Chemistry.—A. A. Noyes' *Qualitative Analysis.* A discussion of the principles involved in chemical analysis, together with laboratory work. The student is taught to detect the presence of the common elements in unknown substances. Three periods. Required of Sophomores in Chemistry. Mr. FETZER.

305. Analytical Chemistry.—Lincoln & Walton's *Quantitative Analysis.* Gravimetric and valumetric analysis, special attention being given to the analysis of substances of agricultural and technical importance. Four periods, required of Juniors in Chemistry. Eight periods, required of Seniors in Chemistry. Doctor WILLIAMS.

307. Physical Chemistry.—Lectures, recitations and laboratory work. Three periods required of Juniors in Chemistry. Three periods required of Seniors in Chemistry. Dr. WILLIAMS.

308. Agricultural Chemistry.—Lectures and recitations. Two periods. Required of Seniors in Chemistry. Professor WITHERS.

BOTANY AND BACTERIOLOGY.

320. Elementary Botany.—Recitation, laboratory work and reference reading regarding the algæ, fungi, ferns, and seed plants. Morphology is emphasized, and the broad principles of nutrition, reproduction, growth, sex, adaptation, and evolution are illustrated. Particular consideration is given to the fungi. The student's knowledge is made his own through laboratory work and simple independent investigations. Three periods, first and second terms. Required of Freshmen in Chemistry. Professor FULTON, Mr. YOUNG.

321. Bacteriology.—Lectures and laboratory work on the physiology, morphology, and economy of bacteria, with especial reference to home sanitation and disinfection, and to the relation of bacteria to disease in plants and animals, and to agricultural practice. The student becomes familiar in the laboratory with methods of culture and investigation in bacteriology. Three periods, second term. Required of Sophomores in Chemistry. Mr. COOPER.

322. Bacteriology (Advanced).—A course designed to extend knowledge in special fields and to perfect the technique in bacteriology for those who desire to do original work in bacteriology. Work may be elected in sewage bacteriology, dairy bacteriology, bacterial plant diseases, bacteriology of manure, water, soil or air. The course is flexible and will be made to fit the requirements of those students electing it. Three periods. Elective for Seniors in Chemistry. Prerequisite, Botany 321. Professor FULTON, Mr. COOPER.

SOILS.

331. Soils.—Attention is given to the forces that decompose and disintegrate rock and to the influence of these forces and of the various kinds of rock on the resulting soil. The physical characters, such as water-holding capacity, capillarity, drainage, effect of mulches, temperature and weight, and the modification of these characters by tillage, cropping, and all operations of practical soil management, are discussed and exemplified in the classroom, laboratory, and field. Some attention is given to the classification of soils in the United States and especially in North Carolina. The physical, chemical, and bacteriological soil conditions are discussed in relation to each other and to their effects on soil fertility. Systems of maintaining the permanent productiveness of soils are studied. Three periods throughout the year. Required of Juniors. Prerequisites, Chemistry 300, 301, and Physics 280. Professor SHERWIN.

332. Advanced Soils.—In this course the student will be guided in the study of any line of soils work he may choose, either along

practical or scientific lines. Laboratory work will be given. Considerable reference will be made to Experiment Station literature, with the aim of acquainting the student with the literature on the subject, and with the methods of investigation used. Three periods, first term. Prerequisite, Soils 331. Elective for Seniors in Chemistry. Professor SHERWIN.

333. Fertilizers.—Fertilizing as a factor in soil management and economical crop production. Sources, composition, availability and value of various commercial and farm fertilizers. Comparative value of the elements of plant food in different carriers, as shown by their productive capacity. Fertilization of all the principal crops of the State and of any special crops in which the class is interested will be discussed, considering amount, method, and time of application, as well as the most economical formula to use. Two periods, second term. Elective for Seniors in Chemistry. Prerequisite, Soils 331. Professor SHERWIN.

STOCK FEEDING.

335. Stock Feeding.—A study of the compositions of feeds, and the food requirements of the domestic animals. The student will be required to become familiar with the fundamental principles, so that he can compound suitable rations for the different classes of live stock. Special emphasis will be laid upon practical problems in feeding. Three periods, second term. Elective for Seniors in Chemistry. Professor MCNUTT.

MATHEMATICS.

While the subject of mathematics is presented in such a manner that the student obtains a thorough working knowledge of those principles which he needs in his Engineering Course, yet it is not the purpose to subordinate the general theory of Mathematics to the practical side. The work consists of recitations, written exercises, and lectures, with frequent oral and written quizzes.

340. Algebra.—Wells' *New Higher Algebra.* This course begins with quadratic equations and completes summation of series, embracing ratio and proportion, variation, the progressions, the binomial theorem, undetermined coefficients, logarithms, compound interest and annuities, permutations, combinations, and continued fractions. Five periods, first term. Required of Freshmen. Prerequisite, entrance requirements. Professor YATES, Mr. HARRELSON, Mr. BLACKBURN, Mr. TUCKER, Mr. HALES.

341. Plane and Solid Geometry.—This course begins with the fourth book, completes Solid Geometry, and includes numerous original exercises. Five periods, second term. Required of Freshmen. Prerequisites, entrance requirements and a term standing of 60 per cent or more on the work of the first term. Professor YATES, Mr. HARRELSON, Mr. PITTS, Mr. TUCKER.

343. Advanced Algebra.—Wells' *New Higher Algebra.* The general theory of equations, the solution of higher equations, determinants, etc. Required of Sophomores. One period, first term. Prerequisites, 340 and 341. Professor YATES, Mr. HARRELSON, Mr. BLACKBURN, Mr. TUCKER, Mr. HALES.

344. Trigonometry.—Wells' *Plane and Spherical Trigonometry.* Plane Trigonometry. Definitions of the trigometric functions; derivation of formulæ, with their application. Solution of plane triangles, etc. Spherical Trigonometry. Solution of spherical triangles. This course includes the solution of many practical problems. Required of Sophomores. Four periods, first term. Prerequisites, 340 and 341. Professor YATES, Mr. HARRELSON, Mr. BLACKBURN, Mr. TUCKER, Mr. HALES.

345. Analytical Geometry.—Nichols' *Analytical Geometry.* Loci of equations, straight line, circle, parabola, ellipse, hyperbola, a discussion of the general equation of the second degree, higher plane curves, and geometry of three dimensions. Juniors, five periods, first term; two periods, second term to March 15. Sophomores, five periods, second term. Prerequisites 340 and 341. Professor YATES, Mr. HARRELSON, Mr. BLACKBURN.

346. Differential and Integral Calculus.—Osborne's *Elements of Calculus.* A thorough treatment of the fundamental principles and derivations of formulæ; applications to various problems, such as expansion into series, evaluation and indeterminate forms, maxima and minima, radius of curvature, lengths of curves, areas, volumes, etc. Three periods, second term to March 15; five periods, March 15 to end of term. Required of Juniors in Engineering. Three periods, first term. Required of Seniors in Engineering. Elective for Seniors in Chemistry. Prerequisites for differential calculus, 343 and 344; for integral calculus, differential calculus and 345. Professor YATES, Mr. HARRELSON, Mr. BLACKBURN.

ENGLISH.

360. Composition and Rhetoric.—After a review of the principles of English grammar, special attention is given to the selection of subjects, the planning of essays, and to the study of words, sen-

tences, and paragraphs. Frequent themes are required, the work being directed mainly upon the mechanics of writing and the making of reports on scientific studies. Required of Freshmen. Three periods, first term. Mr. PRATT, Mr. FARRELL.

361. American Literature.—The study of the history of American literature is accompanied with the reading and analysis in class of the writings of representative American authors. Essays are based largely on class and parallel reading. Three periods, second term. Required of Freshmen. Mr. PRATT, Mr. FARRELL.

362. Advanced Rhetoric.—The principles of style and the forms of discourse constitute the basis of the work. Scientific exposition in particular is studied in selected essays and addresses; and in frequent essays the principles learned are put into practice. Three periods, first term, and second term to March 1. Required of Sophomores. Professor HARRISON, Doctor SUMMEY, Mr. PRATT.

363. Public Speaking.—The principles governing the preparation and delivery of public addresses are given in text-book and in lectures. The reading in class of addresses in various styles, the writing of several papers by each member of the class, and practice in delivery, complete the work. Three periods, after March 1. Required of Sophomores. Professor HARRISON, Doctor SUMMEY, Mr. PRATT.

364. English Literature.—The inductive study of the development of English poetry and prose is pursued in the works of standard writers of the different periods. The continuity is emphasized by a text-book on the history of the literature. Occasional essays and parallel reading form an important part of the work. The purpose of the course is to cultivate in the student a taste for the best writings of the greatest writers. Three periods throughout the year. Required of Juniors. Professor HARRISON, Doctor SUMMEY.

365. Journals.—To give practical knowledge of technical and of other standard journals is the purpose of this course. The frequent essays required are mainly of scientific and technical character. Two periods, first term. Required of Seniors in Civil and Electrical Engineering and in Chemistry. Elective for Seniors in Mechanical Engineering. Professor HARRISON.

366. Classics.—The lives and works of the greatest scientists, and of other great writers, particularly of the nineteenth century, are studied in this course. Essays will be continued as in the first term. Two periods, second term. Required of Seniors. Professor HARRISON.

ECONOMICS.

367. Introductory Economics.—This course is designed to train the student in the elementary principles of economics. A brief survey will be given to the problems which have arisen with the modern organization of business, such as labor problems, the relation of independents to the trusts, and the governmental regulation of business. Three periods, first term. Open to Seniors. Professor CAMP.

MODERN LANGUAGES.

The aim of the department is to enable one to use a limited vocabulary for practical purposes in speaking and writing fluently simple sentences without idiomatic expressions or difficult constructions, and to read scientific works and to know the meaning of difficult constructions and idiomatic expressions of the foreign language.

A unilingual method is used, based on conversation, humoristic anecdotes, interesting short stories, and scientific articles. The student is taught to think in the foreign language by a direct association of thoughts with foreign expressions without the medium of English.

The meaning and fluent use of foreign expressions are taught by a direct appeal to real objects, gestures, pictorial illustrations, cognates, context, comparisons, contrasts, and associations, beginning with leading simple questions and gradually progressing to more advanced ones, by frequent repetitions, and by a strict adherence to the rule that answers be always given in complete short sentences of the foreign language and never by "yes," "no," or some other short word alone.

Grammatical and lexical details for the thorough understanding of the lesson are given. The rules are deduced from the examples, and the student is trained in their correct use by interesting connected matter.

Written examinations consist of translations from English into the foreign language, and of questions and answers in the foreign language. No English appears in an examination paper. No time is allowed for hesitancy. Answers are spoken fluently and written rapidly.

Instruction is given three hours per week. The work is optional, but credit toward a degree is allowed for the successful completion of the work.

The languages regularly taught are German for students of

Chemistry and Mechanical Engineering, and Spanish for Civil and Electrical Engineering students.

A complete set of Holzel's Wall Pictures in colors is used. The pictures represent life of man in the home, the city, during the spring, the summer, fall, and winter, and they furnish most interesting topics for conversation.

370. German.—Worman's Modern Languages, first and second German books; *Deutsches Lese und Uebungsbuch*, by Prokosch; Fischer's *Practical Lessons in German; Practical German Grammar*, by Calvin Thomas; *German Reader*, by Fischer; and a scientific reader. Three periods. Elective for Juniors or Seniors in Engineering. Required of Sophomores and Juniors in Chemistry. Doctor RUDY.

371. French.—Worman's *Modern Languages*, First and Second French books; Worman's *Grammaire Francaise;* selected short stories from French literature, and scientific readers. This subject may be taken by special petition to the Faculty. Doctor RUDY.

372. Spanish.—Worman's *Modern Languages*, First and Second Spanish books; *Introduccion a la Lengua Castellana*, by Marion y Des Garrenes; a Spanish grammar to be selected; Fontaine's *Flores de Espana*, and other short stories of Spanish literature; *Modelos para Cartas.* Elective for Juniors and Seniors in Engineering. Three periods. Doctor RUDY.

MILITARY SCIENCE.

390. Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier, squad, company, and battalion; ceremonies including inspection, parade, review, and guard mounting; guard duty; marches and minor tactics; attack and defense; gallery and range target practice. Three hours a week. Required of all classes except Seniors. Seniors may take either the drill or three extra hours in some other subject instead. Lieutenant SPURGIN and Cadet Officers of the Battalion.

391. Tactics.—Theoretical instruction in infantry drill regulations, field-service regulations, map reading and small-arms firing manual. One hour a week. Required of Sophomores. Lieutenant SPURGIN.

III. TEXTILE COURSES.

III (a.) The Four-year Course in Textile Industry.

THE TEXTILE DEPARTMENT.

The Textile Department, which is a fully equipped Textile School, contains all the necessary machinery for instruction in manufacturing cotton yarns and fabrics from the bale to the finished product. The student is taught the theory of cotton spinning, weaving, designing and dyeing. In connection with the theory, he learns the practical operation of cotton machinery used in carrying on the different processes. Further, he learns such essential practical details as enable him to adjust and fix the machinery so as to produce the proper results. As a result of this training, each student produces for himself cotton yarns of different numbers, and cotton fabrics of different kinds, from his own designs and choice of colors.

TEXTILE INSTRUCTION.

In this department two courses of instruction are offered, the four-year course, leading to the degree of Bachelor of Engineering, and the two-year course in carding and spinning, weaving, designing, and dyeing.

Four-year Course.

The four-year course offers complete facilities for full instruction in all branches of cotton-mill work. Practical training in textile work begins in the Freshman year and forms a part of the work in each of the following years. The combination of practical with theoretical training is begun in the Sophomore year, and continues in the Junior and Senior years. The theoretical work is directly related to the practical work going on, and this combination offers the best means for studying cotton-mill work and its operations.

Two-year Course.

The two-year course is offered to students who cannot spend the time required for the four-year course, or who have had practical experience in the mill and wish to avail themselves of our facilities for giving special instruction in textile work.

TEXTILE BUILDING AND EQUIPMENT.

The textile building is located on the west campus. It is a two-story brick building one hundred and fifty by seventy-five feet, with a basement. Throughout, its construction is similar to that of a cotton mill, being an illustration of standard construction in this class of buildings. The basement is fitted up with a laboratory and classroom for instruction in dyeing and with dyeing machinery. On the first floor are located the hand and power looms and the necessary warp-preparation machinery. The carding and spinning machinery is located on the second floor. Electricity is used as a motive power, the machinery of each department in the building being driven by a separate motor. The machinery equipment consists of the latest types of cotton-mill machinery, manufactured by American builders.

Power and Power Transmission.

One 30-horsepower 3-phase 550-volt motor, made by General Electric Company, for driving carding and spinning machinery.

One 15-horsepower 3-phase 550-volt motor, made by General Electric Company, for driving weaving machinery.

One 10-horsepower 3-phase 550-volt motor, made by Fairbanks-Morse Company, for driving dyeing machinery.

Pulleys, shafting, hangers, and couplings, made by Jones & Laughlin Company, Ltd., Pittsburg, Pa.

Belting, made by Fayerweather & Ladew, New York City, and Maloney-Bennett Belting Company, Chicago, Ill.

Carding Department.

Opening Room.—One cotton gin, made by Continental Gin Company, Birmingham, Ala. One thread extractor, made by Kitson Machine Company, Lowell, Mass. One combination opener and breaker lapper, made by Kitson Machine Company, Lowell, Mass. One 40-inch single beater finisher lapper, with patent carding beater, made by Kitson Machine Company, Lowell, Mass.

Carding Room.—One 40-inch revolving flat card, 112 flats, with coiler, made by Mason Machine Works, Taunton, Mass. One 40-inch revolving flat card, 110 flats, with coiler, made by Whitin Machine Works, Whitinsville, Mass. One 40-inch revolving flat card, 110 flats, with coiler, made by Saco & Pettee Machine Shops, Newton Upper Falls, Mass. One single railway head, with coiler, leather rolls, made by Whitin Machine Works, Whitinsville, Mass. One drawing frame, four deliveries, leather rolls, made by Whitin

Machine Works, Whitinsville, Mass. One railway head, with coiler, metallic rolls, and improved evener motion, made by Saco & Pettee Machine Shops, Newton Upper Falls, Mass. One drawing frame, four deliveries, metallic rolls, made by Saco & Pettee Machine Shops, Newton Upper Falls, Mass. One sliver lap machine, one ribbon lap machine, and one six-head combing machine, made by Whitin Machine Works, Whitinsville, Mass. One 36-spindle slubber for 11 by 5½-inch bobbin, with ball-bearing top rolls, made by Woonsocket Machine and Press Company, Woonsocket, R. I. One 48-spindle intermediate roving frame for 9 by 4½-inch bobbin, made by Saco & Pettee Machine Shops, Biddeford, Me. One 64-spindle fine roving frame for 7 by 3½-inch bobbin, with ball-bearing top rolls, made by Woonsocket Machine and Press Company, Woonsocket, R. I. One 80-spindle jack roving frame for 6 by 2½-inch bobbin, with ball-bearing top rolls, made by Woonsocket Machine and Press Company, Woonsocket, R. I.

Spinning Department.

Spinning Room.—One 64-spindle spinning frame for warp; one 80-spindle spinning frame for filling, made by Whitin Machine Works, Whitinsville, Mass. One 80-spindle spinning frame for warp, one 80-spindle spinning frame for filling, made by Mason Machine Works, Taunton, Mass. One 80-spindle spinning frame for warp, one 80-spindle spinning frame for filling, one 180-spindle spinning frame, tape drive, with combination build, made by Fales & Jenks Machine Company, Pawtucket, R. I. One 64-spindle spinning frame for warp, one 64-spindle spinning frame for filling, made by Saco & Pettee Machine Shops, Biddeford, Me. One 48-spindle spinning frame, combination build, made by D. A. Tompkins Company, Charlotte, N. C. One 240-spindle mule spinning frame, 1½-inch gauge, made by Asa Lees & Co., Oldham, England.

Spooling, Twisting, and Winding.—One 40-spindle spooler, made by Draper Company, Hopedale, Mass. One 40-spindle spooler, made by Whitin Machine Works, Whitinsville, Mass. One 32-spindle spooler, made by Easton & Burnham, Pawtucket, R. I. One 40-spindle spooler, made by D. A. Tompkins Company, Charlotte, N. C. One 48-spindle twister, made by Whitin Machine Works, Whitinsville, Mass. One 100-spindle wet twister, made by Draper Company, Hopedale, Mass. One 48-spindle twister, one-half for wet, one-half for dry twisting, made by Fales & Jenks Machine Company, Pawtucket, R. I. One 50-spindle reel, one-half live, one-half dead spindles, made by D. A. Tompkins Company, Charlotte, N. C.

One 40-spindle reel, made by Draper Company, Hopedale, Mass. One 6-spindle universal winding machine, made by Universal Winding Company, Boston, Mass. One section warper, 400 ends, made by Draper Company, Hopedale, Mass.

Weaving Department.

Warp Preparation.—One 12-spindle bobbin-winding machine, made by Jacob K. Altemus, Philadelphia, Pa. One 4-spindle bobbin winding machine, made by Universal Winding Company, Boston, Mass. One beaming machine, made by Lewiston Machine Company, Lewiston, Me. One beaming machine, complete, made by the T. C. Entwistle Company, Lowell, Mass.

Looms.—One Northrop-Draper print-cloth loom; two Northrop-Draper sateen looms; one Northrop-Draper loom with 20-harness dobby, made by Draper Company, Hopedale, Mass. Three high-speed sheeting looms, made by Kilburn, Lincoln & Co., Fall River, Mass. One sheeting loom, one 12-harness dobby loom, one 24-harness dobby loom, one 4 by 1 gingham loom, made by Whitin Machine Works, Whitinsville, Mass. One print-cloth loom, one 2 by 1 box loom, one 24-harness dobby loom, made by Mason Machine Works, Taunton, Mass. One 4-harness twill loom, made by Lowell Machine Shop, Lowell, Mass. One Crompton 4 by 1 box gingham loom, one Crompton 4 by 1 box loom with 20-harness dobby; one Crompton 2 by 1 box loom with 400-hook Jacquard machine; one Knowles Gem loom with 4 by 4 box; one Stafford single-box loom with 20-harness dobby, made by Compton & Knowles Loom Works, Worcester, Mass. One single-box loom with 200-hook table-napkin Jacquard machine; one 4 by 1 box table-cover loom with 624-hook Halton Jacquard machine, made by Crompton-Thayer Loom Company, Worcester, Mass. One Whitin loom with 624-hook Halton Jacquard for crochet quilts; one 5-cylinder, 200-hook Jacquard, made by Schaum & Uhlinger, Philadelphia; ten 4 by 4 box hand looms with 30-harness witchheads for narrow fabrics; two 4 by 4 box hand looms with 400-hook and 600-hook Jacquard machines, from Thomas Halton's Sons, Philadelphia.

Knitting.—One full automatic knitting machine, made by George D. Mayo Machine Company, Laconia, N. H. One combination ribber and footer, one ribber made by Scott & Williams, Philadelphia. One "Banner" knitting machine, made by Hemphill Manufacturing Company, Pawtucket, R. I. One ribber, made by Wildman Manufacturing Company, Norristown, Pa. One looper, made by Beattie Manufacturing Company, Cohoes, N. Y. One looper, made by Grosser Machine Company, New York.

Dyeing Department.

The Dyeing Department is located in the basement of the Textile Building, and consists of an experimental dyeing laboratory with desk room sufficient for thirty students, a lecture-room, a stock-room, an office, and a room seventy by fifty feet, which is fitted up to give instruction in practical dye-house work.

The dyeing laboratory is well fitted up with appropriate work tables and all the necessary apparatus for experimental dyeing, dye-testing, color-matching, and the testing of dyed samples to light, acids, alkalis, etc., as well as for carrying out the various chemical operations necessary in dyeing. The dye-house is equipped with the proper dyeing machinery needed in the dyeing of large quantities of material, and the giving of practical instruction in boiling out, bleaching, and dyeing of raw stock, cops, skeins, warps, and piece goods.

The department has a large collection of dye-stuffs and color cards. Through the kindness of the various dyestuff dealers and manufacturers, the department is regularly supplied with all new dyestuffs and color cards as soon as they are put on the market, thus affording the student ample opportunity to become familiar with the latest methods and products for commercial work. The department is indebted to the following firms for donations of dye-stuffs and chemicals:

Farbwerke-Hoechst Company, New York.
Badische Company, New York.
Farbenfabriken of Elberfeld Company, New York.
American Dyewood Company, New York.
Berlin Aniline Works, New York.
Cassella & Co., New York.
Kalle & Co., New York.
Geisenheimer & Co., New York.

Dye-house Equipment.—Seven dye vats; one Roessler & Hasslacher bleaching vat; one Jefferson high-pressure boiling-out kier; one hand-dyeing jigger; one 10-gallon steam-jacketed copper kettle; one steam aging box; one Fairmount warp dyeing machine; one Textile Finishing Company's warp dyeing machine; one Textile Finishing Company's warp sizing machine; one 5-can upright dryer; one small Lightfoot raw stock dyeing machine; one Tolhurst Machine Works hydro-extractor; one Schaum & Uhlinger hydro-extractor; one Mather & Platt cloth printing machine; one Fries warp dyeing machine.

A full equipment of analytical balances and other necessary apparatus for experimental work is provided.

III (a). The Four-year Course in Textile Industry, leading to the degree of Bachelor of Engineering.

Freshman Year.

Subjects.	Periods a Week.*	
	1st Term.	2d Term.
Carding and Spinning, 400†	1	1
Weaving, 401	2	2
Mechanical Drawing, 430	2	2
Shop Lectures, 431	2	--
Woodwork, 432	2	2
Forge Work, 433	--	1
Algebra, 441	5	3
Geometry, 442		2
Elementary Physics, 440	2	2
Composition and Rhetoric, 450	3	--
American Literature, 451	--	3
Military Drill, 480	3	3
Totals	22	22

Sophomore Year.

Carding and Spinning, 400	2	3
Weaving, 401	2	3
Textile Designing, 402	2	1
Cloth Analysis, 403	--	1
Inorganic Chemistry, 420	3	3
Inorganic Chemistry (laboratory), 421	2	2
Drawing	--	1
Advanced Algebra‡ / Trigonometry, 445	5	
Advanced Rhetoric, 452	3	3
Public Speaking, 453	--	
Military Drill, 480	3	3
Military Tactics, 481	1	1
Totals	23	22

*The lecture and recitation periods are one hour; the laboratory, shop, and other practice periods, two hours.

†The figures immediately following the name of the study are given to aid one in finding readily a description of the subject. Under each department a number precedes the description of the study.

‡First five weeks.

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Carding and Spinning, 400	4	4
Weaving, 401	3	3
Textile Designing, 402	3	2
Cloth Analysis, 403	--	1
Dyeing, 410	2	2
Dyeing (laboratory), 411	3	3
Steam Engines and Boilers, 435	2	2
English Literature, 454	3	3
Military Drill, 480	3	3
German (elective), 460	3	3
Totals	23	23

Senior Year.

Carding and Spinning, 400	4	4
Weaving, 401	4	4
Textile Designing, 402	3	3
Cloth Analysis, 403	1	1
Dyeing, 410	1	1
Dyeing (laboratory), 411	3	3
Mill Accounting and Mill Costs, 404	1	1
Machine-shop Work, 434	2	2
Elect three periods from the following:		
Journals, 455	2	--
Classics, 456	--	2
Economics, 457	1	1
Military Drill, 480	3	3
Modern Languages, 460, 461	3	3
Totals	22	22

SUBJECTS OF INSTRUCTION.

400. Carding and Spinning.—Lectures and recitations; practice in operating card and spinning room machinery. Cotton: Classifying the plant, its growth, varieties, ginning, baling and marketing the raw staple. Cotton at the mill; selecting and mixing. Openers and lappers; cards; sliver lap machines; ribbon lap machines; combers, railway-heads; drawing-frames; slubbers; intermediate; speeders; jacks. Ring spinning-frames and mules. Spoolers. Twisters; reels; cone-winders. Construction and functions of each machine; making the various calculations. Drafts, speed of parts, production. Producing yarns of different counts, single and ply. Testing yarns for breaking strength and elasticity. Text-books: *Cotton Mill Processes and Calculations*, by Tompkins; *Cotton Spinning*, by Nasmith. Required of Freshmen, Sophomores, Juniors, and Seniors. Assistant Professor PARKER.

401. Weaving.—Lectures and practice in warp preparation, operating and fixing looms, cloth-finishing machinery. Warp preparation; pin frame warper; section warper; beam warper; construction of beam warper, stop motion, measuring motion, creel; pattern warp making; long and short chain beamers. Slashing: Steam cylinder slasher; hot-air slasher; construction of slasher, creel, cylinder, immersion roll, squeeze rolls, drying fan, separator rolls, winding yarn on beam, cone drive, slow motion, measuring and cut marking motion. Sizing: Construction of size kettle; size mixing and boiling; division of sizing ingredients; value of ingredients; sizing recipes for light, medium, and heavy sizing. Loom-mounting: Reeds and harnesses; drawing in and putting warps in loom. Looms: Hand looms and power looms; construction of plain loom; principal movements in weaving; let-off and take-up motions; fiilling stop motion; warp stop motion. Cams and their construction. Magazine looms, construction and advantages. Drop box looms: Chain building for box looms; changing boxes to have easy running looms; construction and value of multipliers; timing and fixing box motions. Pick and pick-looms. Box-chain and multiplier-chain building; arrangement of colors in boxes to give easy-running loom. Ball and shoe-pick motion. Construction and fixing of head motion. Dobby, single and double index; construction and fixing of dobby; extra appliances necessary for weaving leno, towel, and other pile fabrics. Value of easers; half motion; and jumper attachment for leno. Springs and spring-boxes. Pattern chain building. Jacquard: Single and double lift; construction and tie-up. Weave-room calculations, speed and production

calculations, relative speed of looms, counts of cotton harness. Finishing: Inspection of cloth; singeing and brushing; calendering, tentering; folding and packing for the market. Equipment necessary for warp preparation, weaving, finishing; approximate cost of production of fabrics in the different processes. Text-book: *Weaving, Plain and Fancy*, by Nelson. Required of Freshmen, Sophomores, Juniors, and Seniors in the Four-year Course, and of first and second year students in the Short Course. Professor NELSON, Mr. STEED.

402. Textile Designing.—Lectures and practice in designing. Method of representing weaves on design paper. Foundation weaves: Plain, twill, satin. Ornamentation of plain weave; color effects on plain weave. Derivative weaves, plain and fancy basket weaves, warp and filling rib weaves. Broken twills, curved twills, corkscrew twills, entwining twills. Granite weaves, satin shading. Combination of weaves; figured weaving on plain ground. Satin and figured stripes on plain ground. Spots arranged in different orders on plain, twill, satin ground. Imitation leno, honeycomb weaves. Bedford cords and combination with other weaves. Wave designs, pointed twills, diamond effects. Plain and fancy piques. Double plain, figured double plain. Double cloths. Cloths backed with warp; cloths backed with filling. Cloths ornamented with extra warp; cloths ornamented with extra filling. Cotton velvet. Corduroy. Matelasse, Leno weaves with one, two, and more sets of doups. Principles of working both top and bottom doups. Combination of plain and fancy weaves with leno. Methods of obtaining leno patterns. Jacquards. Distribution and setting out of figures for geometrical and floral effects. Distributing figures to prevent lines. Areas of patterns. Preparation of sketches. Transfer of sketches to design paper. Painting in the design with different weaves according to sketch. Shading the patterns. Card cutting and lacing. Required of Sophomores, Juniors and Seniors. Professor NELSON, Mr. STEED.

403. Cloth Analysis and Fabric Structure.—Calculating particulars of cloth from data ascertained from samples. Shrinkages. Dents in patterns; patterns in warp. Drafting and pattern chain building. Reed and harness calculations. Calculations to obtain quantities of warp and filling in stripe and check fabrics. To find number of threads per inch, using a given weight of warp; also number of picks per inch, using a given weight of filling. Yarn calculations. System of numbering woolen, worsted, silk, linen, and cotton yarns. Determination of one system of yarn to that of another. Textile cal-

culations. Determining the number of threads and picks per inch to make a perfect cloth. Calculations to determine the texture in an unequally reeded fabric. Diameter of threads. Balance of cloth. Texture for double cloth. Required of Sophomores, Juniors, Seniors. Professor NELSON, Mr. STEED.

404. Mill Accounting and Cost Finding.—The general fundamental principles of the various systems of cost-finding as applicable to the different classes of manufactured products are carefully explained, as well as questions of commissions, discounts, depreciation, inventories, distribution of expenses, etc. As a clear understanding of accounting is necessary for intelligent cost-finding, the method of keeping accounts is studied in detail. The general idea is to impress on the student the relative cost of production for any class of manufactured product and to show how the different processes of manufacturing influence cost. One period, first and second terms. Required of Seniors. Mr. HALSTEAD.

DYEING COURSE.

This course is especially for those who wish to engage in any branch of Textile Chemistry, Dyeing, Bleaching, Finishing, or in the manufacture or sale of dyestuffs and chemicals used in the textile industry, and is designed to give a scientific technical education to those who desire to embrace these branches of industrial technology.

Dyeing as an art has long been practiced, but with the introduction of scientific methods it is rapidly developing and assuming a position in the front rank of applied sciences.

As the textile industries of the State increase, the need of young men who have been trained in the principles as well as the practice of the different factory operations becomes apparent. In the course in dyeing the student is taught the different practical methods of the dye-house; the chemistry of the dyestuffs, some of each class of which he actually makes; the chemical changes brought about by mordants, assistants, etc. He also learns color matching, dye testing, and the methods for the analysis of the different chemicals used in the dye-house. He carries on the study of carding, spinning, weaving, designing, cloth analysis, etc., to the end of the Sophomore year, with the other textile students, and with them devotes attention to shop-work, drawings, engines, boilers, etc., together with the general studies of English, History, Mathematics, Physics, and General Chemistry, which are required in all the Four-year Courses.

III (b). The Four-year Course in Dyeing, leading to the degree of Bachelor of Science.

Freshman Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Carding and Spinning, 400	1	1
Weaving, 401	2	2
Mechanical Drawing, 430	2	2
Shop Lectures, 431	2	--
Woodwork, 432	2	2
Forge Work, 433	--	2
Algebra, 441	5	3
Geometry, 442	--	2
Elementary Physics, 440	2	2
Composition and Rhetoric, 450	3	--
American Literature, 451	--	3
Military Drill, 480	3	3
Totals	22	22

Sophomore Year.

Carding and Spinning, 400	2	3
Weaving, 401	2	3
Textile Designing, 402	2	1
Cloth Analysis, 403	--	1
Inorganic Chemistry, 420	3	3
Inorganic Chemistry (laboratory), 421	2	2
Drawing	--	2
Advanced Algebra, 444 / Trigonometry, 445	5	--
Advanced Rhetoric, 452	3	3
Public Speaking, 453	--	
Military Drill, 480	3	3
Military Tactics, 481	1	1
Totals	23	22

Junior Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Dyeing, 410	2	2
Dyeing (laboratory), 411	5	3
Organic Chemistry, 422	2	2
Analytical Chemistry, 424, 425	5	7
English Literature, 454	3	3
Military Drill, 480	3	3
German (elective), 460	3	3
Totals	23	23

Senior Year.

Dyeing, 410	3	3
Dyeing (laboratory), 411	2	2
Analytical Chemistry, 425	6	6
Organic Chemistry (laboratory), 426	3	3
Elect six periods from the following:		
Journals, 455	2	--
Classics, 456	--	2
Economics, 457	1	1
Military Drill, 480	3	3
German, 460	3	3
Totals	22	22

Subjects of Instruction.

410. Dyeing.—With the microscope and other testing apparatus the student makes a careful study of the various fibres used in the textile industry. He also studies the chemical and physical properties of these fibres, and the action of acids, alkalis, heat, moisture, and the various other agencies to which fibres are liable to be subjected. He next takes up the study of the fundamental principles which underlie the arts of bleaching and dyeing, such as the boiling out and bleaching of cotton, and the chemical reactions involving each step; the adaptability of water for bleaching and dyeing, fol-

lowed by the theories of dyeing; substantive dyestuffs and their application to cotton; after-treatment of direct dyestuffs, including diazotising and developing and the topping with basic dyestuffs; the application to cotton of basic dyestuffs, acid dyestuffs, mordant dyestuffs, including a study of the various mordants and their fixation with metallic salts; dyeing with sulphur dyestuffs, indanthrenes, indigo, natural and artificial, aniline black, turkey red, and the insoluble azo colors developed on the fiber; the methods of bleaching and dyeing of linen, jute, ramie, and other vegetable fibers; the scouring and bleaching of wool; the carbonization and chlorination of wool; the application of basic acid, chrome, eosin, and direct colors to wool; dyeing wool with logwood, fustic, and other natural dyewoods; methods of the making and dyeing of artificial silk; the boiling off, bleaching and dyeing of natural silk; study of the chemical and physical changes which take place during mercerization; also the methods of dyeing mercerized goods; the use of the various kinds of machines used in bleaching and dyeing; the dyeing of raw-stock, skeins, cops, warps, piece goods, hosiery, underwear, and unions; the science of color-mixing; color-matching on textiles; the use of the tintometer and colorimeter; calico printing, including the various methods of preparing the various pastes, thickening agents, mordants and assistants used in printing; quantitative analysis of mixed yarns, and fabrics composed of cotton, wool, and silk; the testing of dyestuffs for their shade, tinctorial power, and leveling properties; comparative dye trials to determine money value; testing for mixtures; the reactions of acids, alkalis, and reducing agents on several samples taken from the different classes of dyestuffs.

The course of lectures, as outlined above, will include the consideration of many difficult problems that arise in the dye-house, with especial reference to the dyeing, mercerizing, and finishing of cotton yarns and pieces. Required of Juniors and Seniors in Textile Industry. Mr. HALSTEAD.

411. Dyeing Laboratory.—A series of experiments is performed which covers all the subjects taken up in the lecture course, and includes a large amount of work done in the laboratory and dye-house. Special stress is put on the matching of colors and the dyeing of sulphur and indanthrene dyestuffs. Each student is required to bleach and dye a large number of samples of yarn and cloth on a small scale, and is required to mount specimens of his work in a pattern book. At the discretion of the instructor in charge, the class bleaches and dyes larger quantities of raw-stock, cloth and yarn in the dye-house, as well as prints samples on the laboratory

printing machine. This work will be supplemented by visits to the mills which do dyeing in the city of Raleigh. Required of Juniors and Seniors in Textile Industry. Mr. HALSTEAD.

CHEMISTRY.*

420. Inorganic Chemistry.—McPherson & Henderson's *General Chemistry.* The common elements and their principal compounds are studied, together with some of the fundamental principles of the science. The lectures are illustrated by experiments and the exhibition of specimens. Three periods. Required of Sophomores. Professor WITHERS, Doctor WILLIAMS, Mr. FETZER.

421. Inorganic Chemistry.—Laboratory work. McPherson & Henderson's *Chemical Experiments.* The student performs under the eye of the instructor experiments designed to illustrate and emphasize the work of the classroom. The latter part of the year is devoted to an introductory course in qualitative analysis. Two periods. Required of Sophomores. Doctor NOWELL, Mr. SHERWOOD.

422. Organic Chemistry.—Remsen's *Introduction to the Study of the Compounds of Carbon.* The fundamental principles of organic chemistry and the more important compounds are studied through the aliphatic series. Two periods. Required of Juniors in Dyeing. Doctor NOWELL.

424. Analytical Chemistry.—A. A. Noyes' *Qualitative Analysis.* A discussion of the principles involved in chemical analysis, together with laboratory work. The student is taught to detect the presence of the common metallic elements, as well as that of the acids, in unknown substances. Four periods, first term. Required of Juniors in Dyeing. Doctor WILLIAMS.

425. Analytical Chemistry.—Treadwell's *Quantitative Analysis.* Gravimetric and volumetric analysis, special attention being given to the analysis of substances of technical importance. Seven periods, second term. Required of Juniors in Dyeing. Six periods. Required of Seniors in Dyeing. Doctor WILLIAMS.*

426. Organic Chemistry.—Laboratory work. Orndorff's *Laboratory Manual.* The typical transformations and syntheses of the aliphatic and aromatic groups are taken up. The student thus becomes familiar with the reactions and properties of the more important organic compounds. One of each of the more important classes of dyestuffs is prepared and the properties studied. Three periods. Required of Seniors in Dyeing. Doctor NOWELL.

*For further information, see Course in Chemistry.

MECHANICAL ENGINEERING.*

430. Mechanical Drawing.—Work in the use of the pencil; technical sketches of objects, usually parts of a machine. Geometric drawing; isometric and cabinet drawing; elementary projections; drawings made to scale from working sketches of pieces of a machine; elementary principles of descriptive geometry; cylinders, cones, and prisms; intersection and development of surfaces; miscellaneous problems. Two periods. Required of Freshmen. Mr. COBURN.

431. Shop Lectures.—A series of lectures and recitations on the construction and use of woodworking tools and machinery; on the lumbering industry and preparation of lumber; on foundry and forge practice; on pattern-making; on shop equipment in general, labor-saving devices, etc. Two periods, first term. Required of Freshmen. Professor SATTERFIELD and assistants.

432. Woodwork.—Use of bench tools; working from drawings, lining, sawing, planing; practice in making simple exercises in woodturning. Two periods. Required of Freshmen. Mr. CLAY.

433. Forge Work.—Exercises in working with iron, welding; use and care of forge tools and fires. Two periods, second term. Required of Freshmen. Mr. HURTT, Mr. NICHOLS.

434. Machine-shop Work.—Bench and machine work. Exercises in chipping and filing. Exercises in lathe work, boring, reaming, drilling, planing, milling, and shaper work. Two periods. Required of Textile Seniors. Mr. PARK.

435. Steam Engines and Boilers.—A study of the structural details of modern steam engines; the slide valve, both in its simple form and when used in combination with independent cut-off valves; link motion and other reversing gears; and the Zeuner diagram. Attention is given to the effect of the reciprocating parts and to inertia and tangential pressures; the class also studies the steam-engine indicator, indicator rigging, and steam distribution as disclosed by the indicator.

The various forms of steam boilers are studied, and the methods employed in their construction are noted. The following subjects are studied in detail: number and size of tubes and flues, the thickness of plates, strength of different styles of riveting, kinds of bracing, amount of grate and heating surface, different kinds of steam and water gages, safety valves and injectors; the causes and methods of preventing foaming, incrustation, and corrosion; the manner of setting boilers, and of operating them with safety and

*For further information, see Course in Mechanical Engineering.

economy; feed-water heaters; mechanical stokers; smoke-consumers and chimneys. Two periods. Required of Juniors in Textile Industry. Mr. VAUGHAN.

PHYSICS.*

440. Elementary Physics.—In this course special stress is laid upon the subjects of mechanics, liquids, gases, and heat. It includes the study of the fundamental units, British and metric standard measures, definitions of force, work and power, laws of motion, principles of machines, mechanics of fluids, gases, and heat, and brief introductions to the study of sound and light. Two periods. Required of Freshmen. Assistant Professor MCINTYRE.

MATHEMATICS.

441. Algebra.—Wells' *New Higher Algebra.* Begin with quadratic equations and complete summation of series, embracing ratio and proportion, variation, the progressions, the binomial theorem, undetermined coefficients, logarithms, compound interest and annuities, permutation, combinations and continued fractions. At the beginning of the term a review is usually given on involution, evolution, theory of exponents, and radicals. Five periods, first term; three periods, second term to March 15. Required of Freshmen. Prerequisites: For first term, entrance requirements; for second term, the work of the first term, or, in case of failure, a term standing of 60 per cent or more, and a final examination grade of at least 40 per cent, on the work of the first term. Professor YATES, Mr. BLACKBURN, Mr. HARRELSON, Mr. TUCKER.

442. Plane Geometry.—Wentworth's *Plane and Solid Geometry.* A complete course in Plane Geometry, including numerous original exercises. Second term. Two periods, to March 15; five periods, from March 15 to end of term. Required of Freshmen. Prerequisite, entrance requirements. Mr. BLACKBURN, Mr. HARRELSON, Mr. TUCKER, Mr. HALES.

444. Advanced Algebra.—Wells' *Higher Algebra.* The general theory of equations, the solution of higher equations, determinants, etc. Required of Sophomores. One period, first term. Prerequisites, 340 and 341. Professor YATES, Mr. HARRELSON, Mr. BLACKBURN, Mr. TUCKER, Mr. HALES.

445. Trigonometry.—Wells' *Plane and Spherical Trigonometry.* Plane Trigonometry. Definitions of the trigonometric functions;

*For further information, see Course in Electrical Engineering.

derivation of formulæ, with their application. Solution of plane triangles, etc. Spherical Trigonometry. Solution of spherical triangles. This course includes the solution of many practical problems. Required of Sophomores. Four periods, first term. Prerequisites, 441 and 442. Professor YATES, Mr. HARRELSON, Mr. BLACKBURN, Mr. TUCKER, Mr. HALES.

ENGLISH.

450. Composition and Rhetoric.—After a review of the principles of English grammar, special attention is given to the selection of subjects, the planning of essays, and to the study of words, sentences and paragraphs. Frequent themes are required, the work being directed mainly upon the mechanics of writing and the making of reports on scientific studies. Required of Freshmen. Three periods, first term. Mr. PRATT, Mr. FARRELL.

451. American Literature.—The study of the history of American literature is accompanied with the reading and analysis in class of the writings of representative American authors. Essays are based largely upon class and parallel reading. Three periods, second term. Required of Freshmen. Mr. PRATT, Mr. FARRELL.

452. Advanced Rhetoric.—The principles of style and the forms of discourse constitute the basis of the work. Scientific exposition in particular is studied in selected essays and addresses; and in frequent essays the principles learned are put into practice. Three periods, first and second term to March 1. Required of Sophomores. Professor HARRISON, Doctor SUMMEY, Mr. PRATT.

453. Public Speaking.—The principles governing the preparation and the delivery of public addresses are given in text-book and in lectures. The reading in class of addresses in various styles, the writing of several papers by each member of the class, and practice in delivery, complete the work. Three periods after March 1. Required of Sophomores. Professor HARRISON, Doctor SUMMEY, Mr. PRATT.

454. English Literature.—The inductive study of the development of English poetry and prose is pursued in the works of standard writers of the different periods. The continuity is emphasized by a text-book on the history of the literature. Occasional essays and parallel reading form an important part of the work. The purpose of the course is to cultivate in the student a taste for the best writings of the greatest writers. Three periods through the year. Required of Juniors. Professor HARRISON, Doctor SUMMEY.

455. Journals.—To give practical knowledge of technical and of other standard journals is the purpose of this course. The fre-

quent essays required are mainly of scientific and technical character. Two periods, first term. Open to Seniors. Professor HARRISON.

456. Classics.—The lives and works of the great scientists, and of other great writers, particularly of the nineteenth century, are studied in this course. Essays will be continued as in the first term. Two periods, second term. Open to Seniors. Professor HARRISON.

ECONOMICS.

457. Introductory Economics.—This course is designed to train the student in the elementary principles of Economics. A brief survey will be given to the problems which have arisen with the modern organization of business, such as labor problems, the relation of independents to the trusts and the government regulation of business. Three periods, first term. Elective for Seniors. Professor CAMP.

MODERN LANGUAGES.

The aim of the department is to enable one to use a limited vocabulary for practical purposes in speaking and writing fluently simple sentences without idiomatic expressions or difficult constructions, to read scientific works, and to know the meaning of difficult constructions and idiomatic expressions of the foreign language.

A unilingual method is used, based on conversation, humoristic anecdotes, interesting short stories and scientific articles. The student is taught to think in the foreign language by a direct association of thoughts with foreign expressions without the medium of English. The meaning and fluent use of foreign expressions are taught by a direct appeal to real objects, gestures, pictorial illustrations, cognates, context, comparisons, contrasts, and associations, beginning with leading simple questions, and gradually progressing to more advanced ones, by frequent repetitions, and by a strict adherence to the rule that answers be always given in complete short sentences of the foreign language, and never by "yes," "no," or some other short word alone.

Grammatical and lexical details for the thorough understanding of the lessons are given. The rules are deduced from the examples, and the student is trained in their correct use by interesting connected matter.

Written examinations consist of translations from English into the foreign language and of questions and answers in the foreign language. No English appears in an examination paper. No time

is allowed for hesitancy. Answers are spoken fluently and written rapidly.

Instruction is given three hours per week.

Students may elect German during the Junior or Senior year. The work is optional, but credit towards a degree is allowed for the successful completion of the work. Work begun and continued a month may not be dropped without consent of the Faculty.

The languages taught are German and French.

460. German.—Worman's *Modern Languages*, first and second German books; *Deutsches Lese und Uebungsbuch*, by Prokosch; Fischer's *Practical Lessons in German; Practical German Grammar*, by Calvin Thomas; *German Reader*, by Fischer; and a scientific reader. Three periods. Elective for Juniors and Seniors. Doctor RUDY.

461. French.—Worman's *Modern Languages*, first and second French books; Worman's *Grammaire Francaise;* selected short stories from French literature, and scientific readers. Doctor RUDY.

This subject may be taken by special petition to the Faculty.

MILITARY SCIENCE.

480. Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier, squad, company and battalion; ceremonies including inspection, parade, review and guard mounting; guard duty; marches and minor tactics; attack and defense; gallery and range target practice. Three hours a week. Lieutenant SPURGIN and Cadet Officers of the Battalion.

481. Tactics.—Theoretical instructions in infantry drill regulations, field-service regulations, map reading and small-arms firing manual. One period a week. Required of Sophomores. Lieutenant SPURGIN.

TWO-YEAR COURSE IN TEXTILE INDUSTRY.

The two-year course is offered to students who can not spend the time required for the four-year course, or who have had practical experience in the mill and wish to avail themselves of our facilities for giving instruction in textile work.

III (c). The Two-year Course in Textile Industry.

First Year.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Carding and Spinning	2	2
Weaving	3	3
Textile Designing	2	1
Cloth Analysis	--	1
Mechanical Drawing	2	2
Forge Work	2	2
Algebra / Plane Geometry	5	5
English	3	3
Military Drill	3	3
Totals	22	22

Second Year.

Carding and Spinning	5	5
Weaving	4	4
Textile Designing	2	1
Cloth Analysis	--	1
Dyeing	3	3
Machine-shop Work	2	2
English	3	3
Military Drill	3	3
Totals	22	22

DESCRIPTION OF SUBJECTS.

Carding and Spinning.—Lectures and recitations; practice in operating card and spinning room machinery. Cotton: classifying the plant; its growth; varieties; ginning, baling, and marketing the raw staple. Cotton at the mill; selecting and mixing. Openers and lappers; cards; sliver lap machines; ribbon lap machines; combers; railway-heads; drawing-frames; slubbers; intermediate; speeders; jacks. Ring spinning-frames and mules. Spoolers. Twisters; reels; cone-winders. Construction and functions of each machine; making the various calculations. Drafts; speed of parts; production. Producing yarns of different counts, single and ply. Testing yarns for breaking strength and elasticity. Text-books: *Cotton Mill Processes and Calculations*, by Tompkins; *Cotton Spinning*, by Nasmith. Required of first and second year students. Assistant Professor PARKER.

Weaving.—Lectures on construction of plain, twill, sateen, gingham, pick and pick looms are given; also on construction of dobbies and jacquards.

Lectures begin with the construction of plain loom, first taking up the principal movements in weaving, then the various secondary or auxiliary movements, and the relation and timing of one movement to another. Additional motions and parts required to be added to a plain loom in order to weave twill and sateen cloths. Magazine looms; construction and advantages. Drop box looms; construction of the various motions; arranging colors in boxes; methods of building box chains. Dobby: construction of single and double index; setting, and starting up dobby on loom; fixing dobby. Pick and pick looms: construction of loom; construction of head motion; building box chains to have easy-running loom. Jacquard: single and double lift; construction and tie-up. Weave-room calculations for speed and production; counts of reed and cotton harness. Finishing cotton fabrics. Necessary equipment for warp preparation, weaving, finishing; approximate cost of production of fabrics in the different processes. Text-book: *Weaving, Plain and Fancy*, by Nelson. Required of first and second year students. Professor NELSON, Mr. STEED.

Textile Designing.—Lectures and practice in designing. Method of representing weaves on design paper. Foundation weaves; plain; twill; satin. Ornamentation of plain weave; color effects on plain weave. Derivative weaves; plain and fancy basket weaves; warp and filling rib weaves. Broken twills; curved twills; corkscrew twills; entwining twills. Granite weaves; satin shading. Combina-

tion of weaves; figured weaving on plain ground. Fancy satin and figured stripes on plain ground. Spots arranged in different orders on plain, twill, satin ground. Imitation leno; honeycomb weaves. Bedford cords and combination with other weaves. Wave design; pointed twills; diamond effects. Cloths backed with warp; cloths backed with filling. Cloths ornamented with extra warp. Cloths ornamented with extra filling. Combination of plain and fancy weaves. Practical application of weaves to fabrics. Advanced designs. Required of first and second year students. Professor NELSON, Mr. STEED.

Cloth Analysis and Fabric Structure.—Calculating particulars of cloth from data ascertained from samples. Shrinkages. Dents in patterns; patterns in warp. Drafting and pattern chain building. Reed and harness calculations. Calculations to obtain quantities of warp and filling in stripe and check fabrics. To find number of threads per inch, using a given weight of warp; also number of picks per inch, using a given weight of filling. Yarn calculations. System of numbering woolen, worsted, silk, linen, and cotton yarns. Determination of one system of yarn to that of another. Textile calculations. Determining the number of threads and picks per inch to make a perfect cloth. Calculations to determine the texture in an unequally reeded fabric. Diameter of threads. Balance of cloth. Texture for double cloth. Required of first and second year students. Professor NELSON, Mr. STEED.

DRAWING AND SHOP WORK.

Mechanical Drawing.—Work in the use of the pencil; technical sketches of objects, usually parts of a machine. Geometric drawing; isometric and cabinet drawing; elementary projections; drawings made to scale from working sketches of pieces of a machine. Elementary principles of descriptive geometry; cylinders, cones, and prisms; intersection and development of surfaces; miscellaneous problems. Two periods. Required of first-year students. Mr. COBURN.

Forge Work.—Exercises in working with iron, welding; use and care of forge tools and fires. Two periods. Required of first-year students. Mr. WHEELER.

MATHEMATICS.

Algebra.—*Wells' New Higher Algebra.* A thorough treatment of the fundamental conceptions and operations of Elementary Algebra, with special attention to factoring, fractions, simple equations,

simultaneous equations and problem solving, involution, evolution, theory of exponents, and radicals. Five periods, first and second term to March 15. Required of first year students. Mr. HARRELSON, Mr. BLACKBURN, Mr. TUCKER, Mr. HALES.

Plane Geometry.—This course begins the subject and completes the first three books, special attention being given to original exercises. Five periods, March 15 to the end of second term. Mr. HARRELSON, Mr. BLACKBURN, Mr. TUCKER, Mr. HALES.

Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier; squad, company and battalion; ceremonies including inspection, parade, review and guard mounting; guard duty; marches and minor tactics; attack and defense; gallery and range target practice. Three hours a week. Lieutenant SPURGIN and Cadet Officers of the Battalion.

ENGLISH.

Short Course English.—This is a thoroughly practical course in the elements of grammar and of composition, especially spelling, sentence and paragraph structure, and letter-writing. Some reading is done in class, and supplementary reading is assigned for private study. Three hours a week. Required of first-year students. Mr. FARRELL.

ADDITIONAL SUBJECTS IN THE SECOND YEAR.

Dyeing.—The object of this course is to give the student a sound practical knowledge of the fundamental principles which underlie the arts of bleaching dyeing, mercerizing, etc., of cotton yarns and fabrics. The manipulation of the various machines used in bleaching, dyeing, and mercerizing is carefully explained. The physical and chemical properties of the material to be dyed receive first consideration, followed by a study of the adaptability of water for bleaching, dyeing, mordanting, etc. The practical application of the dyestuffs themselves is treated in the most thorough and detailed manner, *e. g.*, the substantive dyestuffs dyed direct, diazotised and developed, after-treated with metallic salts, topped with basic dyes, etc., the basic dyestuffs, sulphur dyestuffs, indanthrene dyestuffs, etc. Practice in color-mixing and matching is given. The student in this way acquires a collection of several hundred dyed samples which, when mounted in his pattern book, serve as a valuable reference. The course is supplemented by lectures, which will include the consideration of many difficult problems that arise in the dye-

house. Three periods. Required of second-year students. Mr. HALSTEAD.

Machine-shop Work.—Bench and machine work. Exercises in chipping and filing. Exercises in lathe work, boring, reaming, drilling, planing, milling, and shaper work. Two periods. Required of second-year students. Mr. PARK.

ENGLISH.

Composition and Rhetoric.—After a review of the principles of English grammar, special attention is given to the selection of subjects, the planning of essays, and to the study of words, sentences, and paragraphs. Frequent themes are required, the work being directed mainly upon the mechanics of writing and the making of reports on scientific studies. Required of second-year students. Three periods, first term. Mr. PRATT, Mr. FARRELL.

American Literature.—The study of the history of American literature is accompanied with the reading and analysis in class of the writings of representative American authors. Essays are based largely upon class and parallel reading. Three periods, second term. Required of second-year students. Mr. PRATT, Mr. FARRELL.

NORMAL COURSES.*

The Normal Courses are intended for the education of teachers, both men and women, chiefly along industrial lines. Industrial education, particularly in agriculture, is being introduced into our public schools, and there is a constant demand for teachers well trained in these subjects. It is hoped by means of the Normal Courses to help supply this demand. Our School Law already requires agriculture to be taught in the public schools, and manual work will doubtless be added. The courses are devoted largely to agriculture and nature study, and include also a review of other public school studies.

Persons already engaged in teaching may, at slight expense of time and money, by means of the short course, or Summer School, make themselves proficient in one or more industrial lines. Persons preparing to teach may take the full courses, and thus become proficient, not only along industrial lines, but also in the other public school branches and in one or more sciences, or in higher mathematics and English. The industrial training given is both practical and theoretical, and is arranged with reference to the present needs of the public schools in North Carolina. The Normal Courses are as follows:

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*See also Normal Division of Agricultural Course, page 48.

IV. Courses for Rural Teachers.

(a) Two-year Course.
(b) One-year Course.
(c) Four-weeks Summer Course.

First Year.

IV. (a) TWO-YEAR COURSE.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Physics or Mathematics	5	5
Chemistry	3	3
English	3	3
Botany	3	3
Zoology	--	3
Agriculture	3	--
Plant Propagation	3	--
Vegetable Gardening	--	3
Physiology	--	3
Farm Management	3	--
Totals	23	23

Second Year.

Landscape Gardening	--	3
Practical Pomology	3	--
Soils	3	3
Poultry	3	--
Plant Diseases	2	2
Economic Entomology	--	3
Breeds	--	3
Dairy	3	--
Agriculture	4	4
Elective	4	4
Totals	22	22

IV. (b) ONE-YEAR COURSE.

Subjects.	Periods a Week.	
	1st Term.	2d Term.
Botany	3	3
Zoology	--	3
Agriculture	3	--
Plant Propagation	3	--
Vegetable Gardening	--	3
Physiology	--	3
Soils	3	3
Poultry	3	--
Breeds	--	3
Dairy	3	--
Elective	5	5
Totals	23	23

THE SUMMER SCHOOL OF AGRICULTURE FOR TEACHERS.

With the establishment of 215 State high schools, in which the most important subject of instruction is agriculture, and with the requirement that this subject be taught also in the common schools, the demand for teachers trained in the sciences upon which agriculture is founded and in their practical application, has become imperative. The Summer School of Agriculture has been established to afford teachers the opportunity to equip themselves to meet this demand.

All the resources of the agricultural department of the College in buildings, farms, live stock, and equipment, are used for the benefit of the Summer School. The entire faculty of this department, so far as needed, will form the staff of instructors.

As it is of course impossible adequately to cover all the branches of agriculture in one session of four weeks, the course of study is arranged progressively for four years. Provision is made, however, for the immediate demands upon the teacher by giving in the first year of the course the essentials for successful school instruction in agriculture. A certificate of work done is issued at the end of each session, and upon the completion of the course there is conferred a full certificate which the State Superintendent of Public Instruction agrees to accept in lieu of examination on the subjects taken.

A special number of the College Record is issued in March, giving full information concerning courses of instruction, expenses, and other matters of the Summer School. A copy of this will be sent upon application to the Registrar of the College.

RULES FOR ADVANCED DEGREES.

Two degrees are conferred: The Engineering Degree to non-resident graduates of the engineering courses and Master of Science to resident students pursuing graduate work.

ENGINEERING DEGREES.

1. That degree of Civil Engineer, Mechanical Engineer, or Electrical Engineer may be conferred upon graduates of the several engineering departments of the College not sooner than three years after graduation.

2. Each candidate for an engineering degree must file his application for enrollment not later than October 5th.

3. He must file with his application a statement of the work he has done since graduation and the title of the thesis which he will present.

4. The record of the work and the subject of the thesis must be approved by the Faculty's standing committee on graduate students before the applicant will be enrolled as a candidate for a degree.

5. The completed thesis must be submitted in approved form not later than May 1. Reports, designs, or drawings made in the regular course of his employment will not be accepted.

6. A candidate must submit with his thesis tangible records of the work he has done and upon which his application for the degree is based, such records to consist of complete drawings, detailed drawings, photographs, records of tests, or other such matter as will show the character of the work done and indicate the degree of responsibility that has been placed upon him.

7. If the record of the work done be approved and the thesis accepted by the Faculty, the candidate, upon notification, must present himself for examination not later than the Saturday preceding the annual commencement. The examination shall consist of oral questions on the subject-matter of the thesis and on the work done by the candidate since graduation.

MASTER OF SCIENCE.

The degree of Master of Science will be conferred on graduate students who fulfill the following requirements:

1. The candidate must have received the bachelor's degree from this College or another institution having an equivalent course of study.

2. Not less than one year must intervene between the conferring of the bachelor's degree and the master's degree.

3. A course of study consisting of one major and two minor subjects, aggregating fifteen periods, must be pursued during residence at the College for not less than one year.

4. The major subject, covering seven periods, shall be strictly graduate work and selected in that department in which the bachelor's degree has been taken.

5. The two minor subjects, aggregating eight periods, shall be chosen from departments allied to the department in which the major subject is taken. The work of the minor subject shall be of a grade not lower than that of the junior year in these departments. Work for which the applicant has received credit towards the bachelor's degree shall not be accepted for credit toward the master's degree.

6. A satisfactory thesis must be presented, the theme of which must be approved by October 5, and previous to his final examination the candidate shall be examined on his thesis and related subjects by a committee composed of professors in charge of the major and minor subjects and two professors in other departments designated by the Faculty.

7. In case the applicant be teaching or working for the College, he shall not be allowed to carry more than one-half of his work at one time, and no work done for the College as instructor shall be credited towards his degree.

FORM OF THESIS.

The thesis must be presented on unruled, white paper, 8⅛ by 11 inches in size, twenty-pound Persian bond or the equivalent. A suitable title page, printed or typewritten, must be prepared. The thesis must be neatly typewritten, properly paged, leaving a margin of 1½ inches on the left for binding, the writing to be on one side of the page only. All drawings or diagrams must be neatly and carefully prepared and where the size of paper necessary is larger than that of the page it must be of such size as conveniently to fold in with the thesis.

The thesis shall become the property of the College and will be placed on file.

DONATIONS.

To the Department of Physics and Electrical Engineering.

Electrical Review Publishing Company, Chicago, Ill.—*The Electrical Review and Western Electrician.*

The Department of Commerce.—*Bulletin of the Bureau of Standards.*

Technical Publishing Company, San Francisco.—*Journal of Electricity, Power and Gas.*

Progressive Age Publishing Company, New York.—*Gas Age.*

Illuminating Engineering Publishing Company, New York.—*Good Lighting.*

Electrical Engineering Publishing Company, Atlanta, Ga.—*Electrical Engineering.*

General Electric Company, Schenectady, N. Y.—*General Electric Review.*

Western Electric Company, Chicago, Ill.—*Western Electric News.*

To Textile Department.

Fales & Jenks Machine Company, Pawtucket, R. I.—One 1-80 Spindle Spinning Frame with tape drive.

American Enamel Company, Providence, R. I.—Lease and Dye Rods.

Southern Novelty Company, Hartsville, S. C.—Paper Tubes for Roving.

Emmons Loom Harness Company.—Lease Reed, Slasher Combs, Sample Harness.

Hampton Company, Easthampton, Mass.—Mercerized Yarns.

Flexible Steel Lacing Company, Chicago, Ill.—Steel Belt Lacing.

J. H. Williams & Company, Millbury, Mass.—½ dozen hand threading Shuttles.

R. Sergeson & Company, Philadelphia, Pa.—½ dozen hand threading Shuttles.

Steel Heddle Company, Philadelphia, Pa.—2 sets wire doup Heddles.

Jones & Laughlin, Pittsburgh, Pa.—Pulleys.

Chadwick, Hoskins Company, Charlotte, N. C.—One beam Warp Yarn.

Keever Starch Company, Columbus, Ohio.—100 pounds Victor Mills Starch.

Draper Company, Hopedale, Mass.—600 Filling Bobbins.

Clark Publishing Company, Charlotte, N. C.—*Mill Directory.*

Davidson Publishing Company, New York.—*Textile Directory.*

The Henrietta Mills, Caroleen, N. C.—One beam Warp Yarn.

Kallé & Company, New York.—Collection of dyestuffs and pattern cards.

Cassella & Company, New York.—Collection of dyestuffs and pattern cards.

The Bayer Company, New York.—Collection of dyestuffs and pattern cards.

Berlin Aniline Works, New York.—Collection of dyestuffs and pattern cards.

Badische Company, New York.—Collection of dyestuffs and pattern cards.

Farbwerke-Hoechst Company, New York.—Collection of dyestuffs and pattern cards.

Also the following textile journals:

Textile Manufacturer, Charlotte, N. C.

Southern Textile Bulletin, Charlotte, N. C.

Mill News, Charlotte, N. C.

Wool and Cotton Reporter, Boston, Mass.

Fiber and Fabric, Boston, Mass.

Textile Manufacturers' Journal, New York.

New York Journal of Commerce, New York.

American Industries, New York.

Canadian Textile Journal, Montreal, Canada.

To the Agronomy Department.

Co-Mortimer Co.—Eight Pure Cultures for Legume Inoculation.

To the Library.

Pranke, E. J.—*Cyananid.*

N. K. Fairbanks Co. (Publishers).—*Fifty-two Sunday Dinners.*

Frank P. Bennett (Publisher).—*How to Build, Equip, and Operate a Cotton Mill in the United States.*

Hill Peebles Wilson.—*John Brown, Soldier of Fortune.*

Harold Jacoby.—*Astronomy.*

B. F. Sturtevant Company (Publishers).—*Heating and Ventilation.*

John P. Altgeld.—*The Cost of Something for Nothing.*

CATALOGUE OF STUDENTS.

GRADUATES.

Name.	*Post Office.*	*Course.*
Everett Hanson Cooper, B.S.	West Raleigh,	Agr.
William Hunt Eaton, B.S.,	Raleigh,	Agr.
Alexander Littlejohn Feild, A.B.,	Raleigh,	Chem.
James Miller Gray, B.S.,	Raleigh,	Agr.
Gordon Harris, B.E.,	Schenectady, N. Y.,	E. E.
Edgar Allan Hodson, B.S.,	West Raleigh,	Agr.
O'Kelly W. Myers, B.E.,	Brooklyn, N. Y.,	C. E.
Warren Carney Norton, Ph.B.,	West Raleigh,	Agr.
Risden Patterson Reece, B.S.,	Winston-Salem,	M. E.
Elmer Aldrich Rickard, A.B.,	West Raleigh,	E. E.
Fleming Bates Sherwood, B.S.,	West Raleigh,	Chem.
Leslie Warren Shook, B.S.,	West Raleigh,	Agr.
John Spicer Wilson, B.E.,	Keokuk, Iowa,	E. E.
Harry Curtis Young, B.S.,	West Raleigh,	Agr.

SENIOR CLASS.

Graham Hudson Anthony,	Shelby,	M. E.
Bascum Otto Austin,	Charlotte,	E. E.
Clare Russell Bailey,	Chadbourn,	Agr.
Hugh Marcellus Bailey,	Woodleaf,	Agr.
Thomas Levingston Bayne, Jr.,	Manchester,	Agr.
Herman Von Biberstein,	Charlotte,	C. E.
Enos Clarkson Blair,	Raleigh,	Agr.
Victor Winfred Breeze,	Durham,	C. E.
Charles Meekins Brickhouse,	Columbia,	Agr.
James Ramsey Buchanan,	Dillsboro,	E. E.
Harley Wilson Bullard,	Chadbourn, R. 2,	Agr.
Robert Olin Caldwell,	Concord,	Agr.
Walter Graham Caldwell,	Huntersville,	Agr.
Edward Lamar Cloyd,	Lenoir,	M. E.
Edwin Lacy Coble,	Greensboro,	Agr.
David Davies Cox,	Cullowhee,	M. E.
Saint John Cox,	Cullowhee,	M. E.
Leland Miot Craig,	Charlotte,	C. E.
Woodfin Grady Credle,	Swan Quarter, R. 2,	Agr.
Samuel Frederick Davidson,	Swannanoa,	Agr.
John Bartlett Fearing,	Elizabeth City,	Chem.
Karl McAtee Fetzer,	Reidsville,	E. E.

Name.	*Post Office.*	*Course.*
JAMES FONTAINE,	Woodsdale,	E. E.
JAMES ROSCOE FRANCK,	Richlands,	Agr.
JOHN GEORGE HARVEY GEITNER, JR.,	Hickory,	Tex.
RALPH ALLISON GILL,	Statesville,	E. E.
WILLIAM HENRY GRIFFIN, JR.,	Goldsboro,	C. E.
JOHN ISAAC HANDLEY,	West Raleigh,	Agr.
JOHN HARVEY, JR.,	Snow Hill,	C. E.
WILLIAM LEON JEWELL,	Wilmington,	C. E.
WILLIAM TISDALE HURTT,	New Bern,	M. E.
LACY JOHN,	Lumber Bridge, R. 1,	Agr.
WILLIS NEAL JOHNSTON,	Mooresville,	M. E.
WILLIAM MANLY JONES,	Raleigh,	M. E.
SIR KEITH KELLER,	Wadesboro,	C. E.
PAUL KING,	Emporia, Va.,	C. E.
DOUGLAS ALLEN LEARD,	Raleigh,	C. E.
WILLIAM DIXON LEWIS,	Gastonia,	Agr.
WILLIAM BENNETT LITTLE, JR.,	Wadesboro,	Agr.
MARION LAMAR LIVERMON,	Roxobel,	C. E.
THOMAS ROBERT MCDEARMAN,	Rocky Mount,	C. E.
JAMES EDGAR MCNEELY,	Mooresville,	Tex.
HARVEY CAMPBELL MCPHAIL,	Mount Olive,	Agr.
JOSEPH EDGAR MICHAEL,	Elon College,	Agr.
THOMAS GUY MONROE,	Eagle Springs,	Agr.
WARREN LAFAYETTE MOODY,	Concord,	Chem.
FRANK BULLOCK MORTON,	Townsville,	E. E.
HENRY KOLLOCK NASH, JR.,	Wilmington,	Agr.
THOMAS WINSTON NICHOLLS,	Edenton,	E. E.
EDGAR BYRON NICHOLS,	Mount Airy, R. 3,	M. E.
FITZGERALD ELIZUR PATTON,	Pisgah Forest,	Agr.
WILL ROBERT PATTON,	Morganton,	C. E.
MILTON VANCE PERRY,	Durant's Neck,	M. E.
JOSEPH JENNINGS PHILLIPS,	Portsmouth, Va.,	C. E.
FRED DAVIS POISSON,	Wilmington,	Chem.
TRACY WINCHESTER PORTER,	Charlotte,	Agr.
WILLIAM OWEN POTTER	Cash Corner,	M. E.
MILLARD REED QUINERLY,	Grifton,	Agr.
JOHN BARTOW REES,	Lincolnton,	E. E.
THURMAN LESTER ROBERSON,	Robersonville,	M. E.
DANIEL ERNEST ROBERTS,	Red Springs,	Agr.
JOHN MORGAN ROBERTS,	Louisville, Ga.,	Agr.
JOE WILLIAM ROSS,	Fort Mill, S. C.,	Agr.
EMORY PELL ROUSE,	Lagrange,	E. E.

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JOHN FRANKLIN SCHENCK, JR.,	Lawndale,	M. E.
WILLIAM THOMAS SHAW, JR.,	Weldon,	Tex.
WALTER HERBERT SMITH,	Prospect Hill, R. 1,	E. E.
ZEB WHITEHURST TAYLOR,	Tarboro,	E. E.
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JAMES RICHARD TOWNSEND,	Greensboro,	C. E.
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OWEN ZELOTES WRENN,	Durham,	C. E.

JUNIOR CLASS.

HENRY MILTON ALEXANDER,	Matthews, R. 17,	E. E.
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LEWIS CARROLL ATKISSON,	Greensboro,	Tex.
BEVERLEY MOSS BLOUNT,	Washington,	M. E.
RALPH BROOKS,	Alliance,	Agr.
JOSEPH BRANDON BRUNER,	Raleigh,	Agr.
HENRY BURLESON,	Plumtree,	E. E.
JOHN CLINE CARPENTER,	Charlotte, R. 12,	C. E.
JOHN MANN CARTER,	Washington,	E. E.
LOUIS GORHAM CHERRY,	Raleigh,	E. E.
GUY WINSTON COMMANDER,	Elizabeth City,	Agr.
HENRY BACON CONSTABLE,	Charlotte,	Chem.
MILTON LEE CORRELL,	Lumberton,	C. E.
EDWARD LIVINGSTON COTTON,	New London,	M. E.
RAYMOND CROWDER,	Raleigh,	E. E.
DALLAS THORNTON DAILY,	Elizabeth City,	C. E.
LEONIDAS POLK DENMARK,	Raleigh,	C. E.
CHARLES PATTERSON ELDRIDGE,	Raleigh,	C. E.
WILLIAM KING ELDRIDGE,	Burkeville, Va.,	M. E.
ARCHIE ARRINGTON FARMER,	Wilson,	E. E.
WILLIAM HERBERT FARMER,	Bailey,	Agr.
RUTLEDGE HUGHES FEILD,	Raleigh,	Agr.
AARON CONRAD FLUCK,	Lexington,	E. E.
WILLIAM BENJAMIN FOSTER,	Winston-Salem,	M. E.
LOUIS WILLIAMS GARDNER,	Shelby,	E. E.
FRANK TEMPLE GRAY,	Cullasaja,	M. E.
JOHN NEEDHAM HACKNEY,	Wilson,	M. E.
JAMES HOLMES HADDOCK,	Richmond, Va.,	Tex.
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ROBERT WILLIAMS HAMILTON, JR.,	Jonesville, S. C.,	Agr.
RUSSELL PEYTON HARRIS,	Louisburg,	Agr.

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HENRY MERCER HARSHAW,	Murphy,	E. E.
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DAVID LEE HOOPER,	Cullowhee,	M. E.
HERNDON HOPKINS,	Greensboro,	Agr.
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JOHN STUART HOWARD,	Salemburg,	Agr.
PAUL NOBLE HOWARD,	Kinston,	C. E.
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RAYMOND ALLEN JONES,	Charlotte,	C. E.
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JOHN DUNCAN RAY,	Sanford,	Agr.
CHAUNCEY HARDWICK ROBERTS,	Fletcher,	Agr.
LANDON COATS ROSSER,	Jonesboro,	E. E.
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WALTER JOHNSTON SMITH, JR.,	Charlotte,	Agr.
HERBERT SPENCER,	Nat. Soldiers Home, Va.,	Agr.
WILBUR SUMNER,	Asheville,	E. E.
DANIEL MCGILVARY TATE,	Norlina,	Agr.

Name.	*Post Office.*	*Course.*
ARTHUR LEE TEACHEY,	Wallace,	Agr.
JESSE ERNEST TREVATHAN,	Rocky Mount, R. 1,	Agr.
CLYDE LOREINE VANN,	Fayetteville,	E. E.
WILL MILLER WATSON,	Swan Quarter,	E. E.
CHARLES WRIGHT WEAVER,	Franklin, R. 1,	M. E.
BUXTON WHITE,	Elizabeth City,	Agr.
FREDERICK CARL WIGGINS,	Middleburg,	Chem.
JOHN RODMAN WILLIAMS,	Sanford,	C. E.
HENRY KOLLOCK WITHERSPOON,	Greensboro,	C. E.
FOREST EGAN WYSONG,	Greensboro,	M. E.

SOPHOMORE CLASS.

CLAUDE SHUFORD ABERNETHY,	Hickory,	M. E.
WILLIAM CROCKER ALBRIGHT,	Mount Airy,	C. E.
OLIVER STANHOPE ANTHONY,	Shelby,	E. E.
JOSEPH ALEXANDER ARDREY,	Fort Mill, S. C.,	M. E.
CHARLES VERNON BAKER,	Raleigh,	C. E.
FRED ALLEN BAKER,	Kings Mountain,	E. E.
JOE OLIVER BARBREY,	Clinton,	C. E.
JERE WILSON BASON,	Swepsonville,	Agr.
MARVIN EDDLEMAN BEATTY,	Charlotte, R. 29,	C. E.
JOHNNIE SAMUEL BENNETT,	Morehead City,	E. E.
JAMES SHEPHERD BONNER,	Washington,	E. E.
CLAY DWIGHT BRITTAIN,	Summerfield,	C. E.
JAMES HEBER BROOKS,	Grifton,	Agr.
THOMAS WETMORE BROOKS,	Stem,	M. E.
CLAUDIUS LEROY CARLTON,	Boykins, Va.,	E. E.
WILLIAM ROY CATES,	Roxboro,	C. E.
JAY VICTOR CHAMPION,	Raleigh,	E. E.
CORNEIL CYRENIUS CLANTON,	Charlotte,	Chem.
CLETE WALTON CLARK,	Owassa, Ala.,	Agr.
WILLIAM SHAW CORBITT,	Henderson,	M. E.
ROBERT THOMAS COTTAM,	High Point,	M. E.
SHERMAN GRADY CRATER,	Cycle,	Agr.
SIDNEY MOTT CREDLE,	Swan Quarter,	C. E.
CHESTER HANE CROWELL,	Newton,	M. E.
ROBERT BRUCE DONALDSON,	Charlotte, R. 8,	Agr.
ARCHIE JAY DOOLITTLE,	Passaic, N. J.,	C. E.
JOHN ALEXANDER FARRIOR,	Raleigh, R. 4,	Agr.
MATTHEW MAURY FONTAINE,	Woodsdale,	E. E.
JOHN ALEXANDER FRAZIER,	Kings Creek,	C. E.
ZEBULON CLIFTON GARDNER,	Shelby, R. 6,	Agr.

Name.	*Post Office.*	*Course.*
PETER MELVIN GILCHRIST,	Laurinburg, R. 4,	Agr.
AMZI NEALY GOODSON,	Concord,	E. E.
KENNETH LEE GREENFIELD,	Kernersville,	Agr.
WILLIAM STEPHEN HAYWOOD,	Mount Gilead,	M. E.
ERNEST PERCY HEINZERLING,	Statesville,	E. E.
LEONARD ORR HENRY,	Gastonia,	E. E.
ERNEST KNOX HERMAN,	Wadesboro,	M. E.
EDGAR ALLEN HESTER,	Whiteville,	E. E.
ROBERT HUGH HILL,	Beaufort,	E. E.
PAUL EUGENE HINE,	Old Town,	M. E.
RALPH HINTON HODGES,	Washington,	Agr.
HOWARD HODNETT,	Wake Forest,	M. E.
THOMAS HALL HOLMES, JR.,	Goldsboro,	E. E.
DEAN RONEY HOLT,	Graham,	M. E.
JOHN GRAIER HUDGINS, JR.,	Beaufort,	C. E.
LONA ALVIN JAYNES,	Fonta Flora,	M. E.
JOHN LEBON JENKINS,	Charlotte,	E. E.
SIDNEY EARLE JENNETTE,	Lake Landing,	C. E.
LEANDER BROWNLOW JOHNSON,	Hendersonville,	Chem.
VERNON JUNIUS JOHNSON,	Hendersonville,	Chem.
VICTOR ALLISON JOHNSTON,	Mooresville,	Agr.
EUGENE CALHOUN JONES,	Raleigh,	Agr.
REX LIVINGSTON KELLY,	Sanford,	E. E.
WILLIAM FREDERICK KENDRICK,	Charlotte,	M. E.
WOODFORD ARMSTRONG KENNEDY,	Warsaw,	E. E.
WILLIAM PENDLETON KENNEDY,	Warsaw,	E. E.
PAUL HANNER KIME,	Greensboro,	Agr.
NATHAN SAMPSON LACHICOTTE,	Waverly Mills, S. C.,	Agr.
JOHN HAYWOOD LANE,	Wilson,	Agr.
COLON ALONZO LEDFORD,	Casar,	Agr.
HENRY ALBERT LILLY,	Mount Gilead,	Agr.
THOMAS BAXTER LILLY,	Mount Gilead,	C. E.
ROBERT OPIE LINDSAY,	Madison,	Tex.
PRENTISS HORACE MCCALL,	Charlotte,	M. E.
WILLIAM SIMPSON MCKIMMON,	Raleigh,	C. E.
JAMES WALTER MCLEOD,	Rowland,	Agr.
FRANK COBLE MCNEILL,	Cameron,	C. E.
ROBERT EDWARD MADISON,	Webster,	E. E.
PIERRE MALLETT,	Etowah,	M. E.
WILLIE EDWARD MARSH,	Aulander,	C. E.
JOSEPH HENRY MASON,	Charlotte,	Tex.
JOHN DANIEL MILLER,	New London,	C. E.

Name.	*Post Office.*	*Course.*
TOMMY LEE MILLWEE,	Charlotte,	E. E.
CHARLES ALFRED MOORE,	Kinston, R. 2,	E. E.
WILLIAM FOWLER MORRISON,	Wilmington,	C. E.
BENJAMIN FRANKLIN MULLEN,	Charlotte,	M. E.
EDWARD MOSEBY MURRAY,	Charlotte,	E. E.
MILES GORRELL MYERS,	Yadkinville,	Agr.
JOHN FRANK NEELY, JR.,	Pineville,	Agr.
DAVID BENJAMIN NOOE,	Pittsboro,	Agr.
MARSHALL FRED ORMAND,	Kings Mountain,	Agr.
REID ALLISON PAGE,	Biscoe,	Agr.
LEE PARKER,	Ahoskie,	C. E.
RUFUS GWYN PARLIER,	Ronda,	M. E.
ASA GRAY PHELPS,	Merry Hill,	M. E.
JOHN BAILEY PRIDGEN,	Elm City,	C. E.
CARL CLAWSON PROFFITT,	Bald Creek,	Agr.
PARKER ROYALL RAND,	Garner, R. 1,	Agr.
HENRY RANKIN,	Gastonia,	M. E.
LEWIS BANKS RAY,	Graham,	M. E.
HUGH CALVIN REA,	Matthews,	Agr.
VICTOR ARTHUR RICE,	Cleveland, Ohio,	Agr.
RAY MILLER RITCHIE,	Concord,	Agr.
PHILIP AUSTIN ROBERTS,	Red Springs,	C. E.
JOHN PAUL ROBERTSON,	Rowland,	Agr.
ZEB BLAINE ROBINSON,	Weaverville,	E. E.
WILLIAM HAYWOOD ROGERS, JR.,	Raleigh,	C. E.
LINDLEY MURRAY ROWE,	Burgaw,	C. E.
CHARLES REID RUSSELL,	Denton,	C. E.
AUGUSTINE JOSEPH RUSSO,	Portsmouth, Va.,	C. E.
DAVID FLOYD SASSER,	Goldsboro,	M. E.
JESSE WOODSON SAUNDERS,	Reidsville,	E. E.
ORRION MAYBURN SCHLICHTER,	Vaughan,	M. E.
CLEMENT OSCAR SEIFERT,	New Bern,	C. E.
BROOKS WALKER SETZER,	Troutman,	E. E.
KARL SLOAN,	Statesville,	C. E.
BASCOM PIERCE SMITH,	Guilford College,	M. E.
JOSEPH MCKAY SPEARS,	Lillington,	C. E.
BENJAMIN STRAUSS,	New York, N. Y.,	M. E.
REUBEN L. TATUM,	Cooleemee,	E. E.
ALFRED TENNYSON TAYLOR,	McCullers,	Agr.
GROVER WILLIAM UNDERHILL,	Knightdale, R. 1,	Agr.
JAMES HUGH WARD,	Macclesfield,	C. E.
JACOB OSBORNE WARE,	Kings Mountain,	Agr.

Name.	*Post Office.*	*Course.*
GEORGE HENDERSON WEBB,	Morehead City,	C. E.
HARRY GRAVES WHARTON,	Greensboro,	Agr.
RAYMOND BENJAMIN WHEATLEY,	Beaufort,	C. E.
GEORGE WHITSON,	Swannanoa,	E. E.
JOHN BYNUM WIGGINS,	Sunbury,	C. E.
JOHN FRANKLIN WILLIAMS,	Bessemer City,	E. E.
JOHN WILDS WILSON,	Johnson City, Tenn.,	Tex.
NOAH ROUSE WILSON,	Wilsons Mills,	C. E.
JAMES HARVEY WITHERS, JR.,	Broadway,	Agr.

FRESHMAN CLASS.

JAMES MASON ALEXANDER,	Asheville,	Tex.
EDWARD LEROY ANDERSON,	Mars Hill,	M. E.
JOHN WELSFORD ARTZ,	Old Fort,	Agr.
GEORGE GANZER AVANT,	Wilmington,	E. E.
JOHN WILLIAM AVERA,	Smithfield, R. 1,	Agr.
GEORGE GARLAND BAKER,	Washington,	M. E.
LOUIS WILLIAM BAKER,	Arlington, N. J.,	E. E.
TALMAGE BAKER,	Ahoskie,	M. E.
BERNARD GUINN BANNER,	Mount Airy,	C. E.
JOHN ROBIN BAUCOM,	Raleigh, R. 2,	Agr.
LOUIS VIVIVAN BEAUREGARD,	Washington, D. C.,	Chem.
FREDERICK NEIL BELL,	Concord,	E. E.
WILLIE LOCKE BELL,	Greensboro,	Tex.
RALPH PURCELL BLANTON,	Mooresboro,	Agr.
TYSON YATES BLANTON,	Mooresboro,	Agr.
JAMES GRANVILLE BOOKER,	Mount Airy,	C. E.
FREDERIC JONES BOUNDS, JR.,	Weldon,	Tex.
DAVID MALTHANER BOWER,	Lenoir,	E. E.
EBENEZER ERSKINE BOYCE,	Gastonia,	E. E.
JAMES GASTON BOYLIN,	Wadesboro,	Agr.
ZEB BOYCE BRADFORD,	Huntersville,	Tex.
WILLIAM STALEY BRIDGES,	Wakefield, R. 1,	C. E.
VIVIAN LEROY BRINN,	Swan Quarter,	M. E.
NOAH BURFOOT, JR.,	Elizabeth City,	Chem.
ELMER SIDES BUTNER,	East Bend,	E. E.
ZEB VANCE BUTTS, JR.,	Morehead City,	E. E.
GORDON MCGREGOR CAMERON,	Manly,	Agr.
ALMON HILL CARTER,	Wallace,	Agr.
MARSH HUTZLER CHEDESTER,	Asheville,	E. E.
ERNEST SINCLAIR CHESSON, JR.,	Elizabeth City,	Agr.
WILLIAM DUNCAN CLARK, JR.,	Owassa, Ala.,	Tex.

Name.	*Post Office.*	*Course.*
WALTER HEMBY CLARK,	Pee Dee,	E. E.
JOHN EDGAR COCKERHAM,	Lowgap,	E. E.
RODNEY LEE COLEMAN,	Wise,	E. E.
JOHN CALHOUN COLLIER, JR.,	Goldsboro,	M. E.
CLIFFORD CANNON COOKE,	Graham,	C. E.
JAMES WESLEY COOPER,	Henderson,	Tex.
FRANCIS EDWIN COXE,	Red Springs,	E. E.
HARRY CRAWFORD,	Waynesville,	E. E.
HILARY HERBERT CRAWFORD,	Waynesville,	E. E.
HARVEY CREDLE,	Scranton,	Agr.
PAUL BOWMAN CRUMPLER,	Washington,	E. E.
JOHN KINGSLEY CULBERTSON,	Mooresville,	M. E.
EDWIN BORDEN DAVIS,	Goldsboro,	Agr.
ROBERT VERNON DAVIS,	Fremont,	E. E.
WILLIAM PRESSLEY DAVIS,	Stovall,	C. E.
ALBERT GEORGE DAY,	Trenton, S. C.,	E. E.
IRA ALEXANDER DEARMON,	Charlotte,	Agr.
WILLIAM CARTER DODSON,	Greensboro,	Tex.
MYNAR CECIL DONNELL,	Greensboro, R. 4,	Agr.
WILLIS FRANK DOWD, JR.,	Charlotte,	Tex.
ROBERT MCKEE DUCKETT,	Charlotte,	E. E.
DOUGLAS MAXWELL EATON,	Morehead City,	C. E.
MARVIN WOODARD EDMUNDSON,	Wilson,	Chem.
OSBERT LEON EDWARDS,	Conover,	E. E.
HENRY ELLIOT,	Duke, R. 1,	Agr.
WILLIAM HENRY ELLIOT,	Thornwall,	Agr.
ARTHUR KENNEDY EVANS,	Greenville,	Agr.
JOSHUA BARNES FARMER, JR.,	Wilson,	Agr.
JULIUS FERDERBER,	Duquesne, Pa.,	C. E.
HENRY CLAY FEREBEE, JR.,	Camden,	Agr.
STEPHEN SCOTT FEREBEE,	Shawboro,	Agr.
FRANK POWERS FONVIELLE,	Warsaw,	C. E.
HAROLD CLAY FOREMAN,	Elizabeth City,	Agr.
EUGENE DICK FOUSHEE,	Greensboro,	Agr.
MARSHALL CLAY FOWLER,	Statesville,	E. E.
DANIEL ROBERT STEELE FRAZIER, JR.,	Kings Creek,	C. E.
FITZHUGH LEE GAMMON,	Whitakers,	Agr.
FREDERICK CARLTON GARDNER,	Rocky Mount,	C. E.
CHARLES STEDMAN GRAINGER, JR.,	Wilmington,	E. E.
LAWSON WYATT GRANTHAM,	Newton Grove,	Agr.
DENNIS GRAY,	Guilford College,	Agr.
JOHN LEROY GREGSON, JR.,	Elizabeth City,	C. E.

Name.	*Post Office.*	*Course.*
ROBERT VANCE GRINDSTAFF,	Sylva,	M. E.
OWEN HAYWOOD GUION, JR.,	New Bern,	C. E.
FRANK JOSHUA HAIGHT,	Balsam,	E. E.
CARL RUSH HARRIS,	Mount Gilead,	Tex.
JOHN FLEMING HARRIS,	Mapleville,	M. E.
ADOLPH THEODORE HARTMANN,	Charlotte,	C. E.
ROBERT NELSON HAYES,	Southern Pines,	E. E.
EDWIN BYRON HAYNES,	Raleigh,	E. E.
JOSEPH BUNKER HAYNES,	Mount Airy,	Agr.
HENRY WARDSWORTH HAYWARD,	Mount Gilead,	M. E.
JOHN WADE HENDRICKS,	Cana, R. 2,	Agr.
NATHANIEL MAURICE HILL, JR.,	Pittsboro,	Tex.
BRUCE DUNSTON HODGES,	Washington,	C. E.
EDISON PARKER HOLMES,	North Wilkesboro,	E. E.
EDWARD HOLLAND HOLTON,	Winston-Salem,	Agr.
ROBERT MULLEN HOOPER,	Beaufort,	E. E.
WILLIAM RANSOM HOOTS,	Jennings,	Agr.
RICHARD DAVID HOUSE,	Scotland Neck,	Agr.
FRANK WILLIAM HOWARD,	Bridgeport, Conn.,	C. E.
HERBERT BONNER HOWIE,	Fort Mill, S. C., R. 2,	Agr.
PERRY ADEN HUMPHRIES,	Zebulon,	Agr.
JOHN DOUGLAS HUNT,	Pomona,	Agr.
THOMAS JEFFERSON INGRAM,	Wadesboro,	Agr.
JOHN ELI IVEY,	Norwood,	Agr.
MURRAY GIBSON JAMES,	Springer,	Agr.
HORACE LENOIR JEFFRESS,	Canton, R. 2,	Agr.
FRED DUNCAN JEROME,	Poplar Branch,	E. E.
MARVIN PELL JOHNSON,	Burlington, R. 4,	C. E.
PAUL WORTHY JOHNSON,	Raeford,	Agr.
WALTER MYATT JOHNSON,	Chalybeate Springs,	E. E.
MARK CALDWELL JOHNSTON,	Newell,	Agr.
JAMES EDWIN JONES, JR.,	High Point,	E. E.
HILTON CRAIG JOYNER,	Aulander,	Agr.
ROBERT THOMAS KEHOE,	New Bern,	M. E.
PAUL PRESTON KELLEY,	Sanford,	Agr.
GEORGE ELIJAH KERLEE,	Black Mountain,	E. E.
HENRI EARLE KING,	Wilmington,	Agr.
FREDERICK SWINDELL KLUTTZ,	Concord,	C. E.
GEORGE EDWARD KNOX,	Lanvale,	C. E.
RICHARD JOSHUA LAKE,	North Fork, Va.,	Agr.
GEORGE HAROLD LAWRENCE,	Hillsboro,	Agr.
WILLIAM LUTHER LAWSON,	Rougemont,	Agr.

Name.	*Post Office.*	*Course.*
JOSEPH LEE, JR.,	Landrum, S. C.,	Agr.
JOSEPH RAOUL LEQUENEC, JR.,	Abbeville, La.,	C. E.
GWYN LENOIR LILLARD,	Charlotte,	Tex.
RISDEN TYLER BENNETT LITTLE,	Wadesboro,	Agr.
NEEDHAM HERRING LOFTIN,	Mount Olive,	E. E.
WILLIAM BISHOP LUMSDEN,	Raleigh,	Chem.
JAMES ROBERT MCARTHUR,	Greenville, R. 6,	Agr.
JAMES EDGAR MACDOUGALL,	Amesbury, Mass.,	Chem.
WILLIAM OWEN MCDOWELL,	Scotland Neck,	Tex.
ROBERT WISSNER MCGEACHEY,	Raleigh,	C. E.
REA MCGINN,	Fort Mill, S. C.,	Agr.
ALEXANDER MCIVER,	Mebane,	M. E.
ROBERT SPENCE MCLEAN,	Gastonia,	Tex.
MORAN DORITH MCLENDON,	Morven, R. 2,	Agr.
JACOB WYATT MCNAIRY,	Lincolnton,	E. E.
ELBERT MCPHAUL,	Red Springs,	E. E.
JAMES ERNEST MCPHAUL,	Shannon,	C. E.
CHARLES BRIGGS MALONE,	Providence, R. I.,	M. E.
MARK STRUVE MARTENET,	Acme,	Agr.
WATT MARTIN, JR.,	Winston-Salem,	M. E.
WILLIAM EMERY MATTHEWS,	Maxton, R. 4,	C. E.
EARLE FLEET MAYBERRY,	Charlotte, R. 29,	C. E.
MORELL BATTLE MAYNARD,	Kerr,	E. E.
CHARLES MEDFORD MEASE,	Canton,	E. E.
LAWRENCE CHARLES MELVILLE,	Clifton, N. J.,	Agr.
GORDON KENNEDY MIDDLETON,	Warsaw,	Agr.
CARL ELMER MILLER,	Chadbourn,	Agr.
EWING STEPHENSON MILLSAPS,	Statesville,	Agr.
TODD BOWMAN MISENHEIMER,	Charlotte,	Tex.
EDWIN JOSEPH MITCHINER,	Wilsons Mills,	C. E.
SAMUEL JOHN MITCHINER, JR.,	Garner,	E. E.
JAMES ALLEN MOIR,	Wentworth,	E. E.
DANIEL A. MONROE,	Eagle Springs,	E. E.
CHARLES MILTON MORRIS,	Concord,	Agr.
FRANCIS SCARR MORRISON,	Statesville,	Agr.
ZACHARIAH ENNISS MURRELL, JR.,	Wilmington,	Agr.
JOHN DAVID NEWELL,	Warrenton,	C. E.
STANLEY LEWIS NEWMAN,	West Raleigh,	Agr.
GRAHAM LEWIS NEWSOME,	Ahoskie,	E. E.
THOMAS LEVI NOE,	Beaufort,	E. E.
WALTER WENDELL OLIVE,	Apex,	Agr.
DAVID ADOLPHUS JAMES ORRELL,	Rocky Mount,	E. E.

Name.	*Post Office.*	*Course.*
WILLIAM MARSHALL OSBORNE,	Charlotte,	Tex.
MACY TALMAGE OWEN,	Thomasville, R. 4,	Agr.
EMMETTE GORDON PADDISON,	Burgaw,	Agr.
CHARLES WALTER PARKER,	Woodland,	Agr.
WALTER LEAK PARSONS, JR.,	Rockingham,	Tex.
JAMES CARTER PERRY,	Durants Neck,	E. E.
JULIAN HAWLEY POOLE,	Jackson Springs,	Agr.
WILLIAM WEYMAN PRICE,	Raleigh,	Chem.
JACK ADDISON PUREFOY,	Asheville,	Agr.
WALTER ROSCOE RADFORD,	Cane River,	Agr.
WALTER CARL RAY,	Martel, Fla.,	M. E.
DAVID MILLER REA,	Matthews,	C. E.
JOHN SHEPPARD REAVES,	Jacksonville, Fla.,	Chem.
JOSEPH LUCIUS REED,	Asheville, R. 2,	Agr.
DAVID FOLSOM RICE,	Hamlet,	E. E.
WALLACE WHITFIELD RIDDICK,	West Raleigh,	C. E.
HERBERT LESTER RITCHIE,	Concord, R. 2,	Agr.
WILFRED HERNDON ROBBINS,	Raleigh,	Agr.
HORACE BASCOMB ROBERTSON,	Asheville,	Tex.
JAMES HENRY ROGERS,	Hurdle Mills,	Agr.
ROYAL HOBGOOD ROYSTER,	Oxford,	E. E.
JENNINGS BRYAN RUDISILL,	Dallas,	C. E.
HENRY FRED RUSH,	Raleigh,	Agr.
OSCAR VEALIE RUSSELL,	Troy,	E. E.
DAVID MORTON SAINTSING,	Wise,	M. E.
WALTER LEAK SCALES, JR.,	Rockingham,	M. E.
WILLIAM LEACH SCARBORO,	Star,	M. E.
WILLIAM KERR SCOTT,	Haw River, R. 1,	Agr.
TROY VANE SHOULARS,	Rich Square, R. 1,	Agr.
ADLAI CLINGMON SHUFORD,	Barnardsville,	Agr.
THOMAS PARK SIMMONS,	Asheville,	C. E.
JAMES DAVIS SMITH,	Hickory,	Agr.
LINDLEY DAWSON SMITH,	Sanford,	E. E.
EVANS CRABTREE SPARROW,	Lowell, R. 1,	C. E.
JOHN HENRY SPEAS,	East Bend,	Agr.
WALTER HENRY SPIVEY,	Rich Square, R. 1,	Agr.
WILLIAM BARNARD STAINBACK,	Henderson,	E. E.
JOHN ALPHEUS STALLINGS,	Durham R. 6,	C. E.
PAUL ERNSCLIFFE STALLINGS,	Concord, R. 6,	Agr.
CHARLES WHITSON STANFORD, JR.,	Teer, R. 1,	Agr.
HENRY JEROME STOCKARD, JR.,	Raleigh,	Chem.
REUBEN BENNETT STOTESBURY,	Swan Quarter,	Agr.

Name.	*Post Office.*	*Course.*
JOHN HENRY SULLIVAN,	Holyoke, Mass.,	Chem.
LOUIS JOSEPH SWINK,	Fentress, Va., R. 2,	Tex.
CLAUDE WEBSTER TABOR,	Raleigh,	C. E.
JOHN ROY TAYLOR,	Norwood,	Agr.
BEN TEMPLE,	Danville, Va.,	Agr.
JOHN SIMPSON TENNENT,	Asheville,	C. E.
PARKER GILLESPIE TENNEY,	Dubuque, Iowa,	Chem.
ALONZO THOMAS, JR.,	Beaufort,	E. E.
OSWALD JEFFERSON TILLETT,	Jarvisburg,	Agr.
BRYAN TILLEY,	Stem, R. 1,	Agr.
PRESTON POWELL TUCKER,	Sandridge, Va.,	Chem.
ERNEST CRAIG TURNER,	Mebane,	Agr.
ROBERT HURST TURNER,	Statesville,	C. E.
NAPOLEON BONAPARTE TYLER,	Rich Square,	Agr.
LELAND FRANCIS VALLEY,	Charlotte,	E. E.
CHARLES ERNEST VANBROCKLIN,	Syracuse, N. Y.,	C. E.
LAVERNE TYSON WADDILL,	Carthage,	E. E.
CARL SEYBATH WARD,	Suburb,	Agr.
LONNIE BASCOM WARD,	Mocksville, R. 2,	E. E.
SYLVESTER HASSELL WARREN,	Hurdle Mills, R. 2,	Agr.
BENJAMIN ALFRED WATKINS,	Wadesville,	Agr.
HARRY HYRNE WATTERS,	Wilmington,	E. E.
LEE CURTIS WEIR,	Kings Mountain,	E. E.
NATHANIEL WARREN WELDON,	Norlina, R. 1,	Agr.
PAUL WEBB WELLMON,	Shelby,	Agr.
LIDEY RAND WELLONS	Smithfield, R. 1,	Agr.
JOHN HENRY WELLS,	Willard,	C. E.
FRED MURROW WEST,	Wests Mill,	M. E.
DRUID EMMET WHEELER,	Asheville,	Tex.
WILLIAM PRESTON WHITE, JR.,	Hobgood,	E. E.
JOHN ALBERT WILLIAMS,	McColl, S. C.,	E. E.
JOHN FRANCIS WILLIAMS, JR.,	Charlotte,	Chem.
PETER MCKELLAR WILLIAMS, JR.,	Fayetteville,	Agr.
THOMAS HENRY WILLIAMS,	Warrenton,	M. E.
CARL LEVERING WILLIAMSON,	Raleigh,	M. E.
ROY LEE WILLIAMSON,	Raleigh,	C. E.
GUY JENNINGS WINSTEAD,	Roxboro, R. 3,	Agr.
HERMAN ELTON WINSTON,	Youngsville,	Tex.
LOUIS ERNEST WOOTEN,	Fountain,	C. E.
CHAUNCEY MARQUIS WORCESTER,	Newburyport, Mass.,	Agr.
ROBERT CLEVELAND YOUNG,	Asheville,	Agr.

SPECIAL.

Name.	*Post Office.*	*Course.*
DAVID HENRY BARLOW,	Tarboro,	Drawing and Math.

TWO-YEAR COURSES.

First Year.

Name.	*Post Office.*	*Course.*
JOHN JAROD ADKINS, JR.,	Southport,	M. A.
CAREY LEN BELL,	Scotland Neck,	Vet.
JOHN RUSSELL BRIGGS,	Pittsburg, Pa.,	M. A.
JULIUS FORD CRABTREE,	West Durham,	Agr.
HAROLD WILSON DAVIS,	Morganton,	M. A.
WILLIAM SERGEANT DIXON, JR.,	Leasburg,	M. A.
RUSSELL GANT,	Burlington,	Tex.
JOHN WILLIAM GILBERT,	Suburb,	Vet.
JOHN THOMAS GRAGG,	Winston-Salem,	Tex.
PERRYE TOMLINSON GUY,	Statesville,	M. A.
WALTER DURHAM HAMPTON,	Brevard,	M. A.
JERRY SMITH HENRY,	Lilesville,	M. A.
WILLIAM HERBERT HODGIN,	Jamestown, R. 1,	Tex.
WILMER STROUD HOGAN,	Hillsboro,	M. A.
THOMAS LANDON HOWARD,	Salemburg,	Agr.
JOHN WESLEY HUNDLEY,	Jefferson,	M. A.
WILLIAM WHITE KERR,	Fort Mill, S. C.,	Tex.
WILLIAM JOSEPH KINCAID,	Wilson,	Tex.
CLAUDE WHITE KIPKA	Mooresville,	Tex.
IRVING EMIT LAWRENCE,	Raleigh, R. 4,	Agr.
BARNEY WEAVER LAWS,	Moravian Falls,	M. A.
HENRY GRADY LIPE,	Matthews,	M. A.
BARNEY GUNBY MCHENRY,	Monroe, La.,	M. A.
JOHN DAVIS MCLEAN,	Wagram, R. 1,	M. A.
OTIS GIBBS MANN,	Middleton,	M. A.
THOMAS JACKSON MARTIN, JR.,	Pelham,	M. A.
HENRY FAIRLEY MONROE,	Laurinburg, R. 2,	Agr.
FRANK LASSITER NIXON,	Sunbury, R. 1,	M. A.
WALTER MOORE NOBLE,	Selma,	M. A.
WILLIAM NEAL PHARR,	Charlotte,	Tex.
LOUIS POTTS,	Davidson,	Agr.
WILLIAM HERBERT POTTS,	Mount Olive, R. 5,	Vet.
CHARLES HILL ROSS,	Morganton,	M. A.
JOHN SCARRY,	New Bern,	M. A.
FRANK TATE STOWE,	Charlotte, R. 4,	Vet.

Name.	*Post Office.*	*Course.*
CECIL ADRIAN SWAIN,	Creswell,	M. A.
POSEY GLENN TAYLOR,	Laurel Springs,	M. A.
WILLIAM ALFRED TINSLEY, JR.,	Stoneville,	M. A.
HENRY HERBERT UNDERWOOD,	Youngsville,	M. A.
GLENN RAYMOND WARD,	High Point,	Tex.
HERBERT PAYNE WARREN,	Spring Hope,	Agr.
JOSEPH HUSKE WILLIAMS,	Duke, R. 1,	Agr.
WILLIAM ROY WOLFE,	Bessemer City,	Vet.
PAUL BARRINGER WYSONG,	Greensboro,	M. A.
CLARENCE ARCH YOUNG,	Asheville,	Agr.

Second Year.

SAM ADELAID ALEXANDER,	Matthews,	Vet.
JAMES WILLIAM BROTHERS,	LaGrange,	Agr.
CLIFFORD COX,	Richlands,	Vet.
JOHN THOMAS DIXON,	Lowell,	Vet.
WILLIAM DEVANE FAISON,	Faison,	Vet.
ROBERT EDWARD LAWRENCE,	Statesville, R. 5,	Agr.
GOWAN GALES LIVENGOOD,	Mocksville, R. 4,	Agr.
GRADY FIELDEN MILLER,	Laurel Springs,	Agr.
SIM AARON NATHAN,	Wilmington,	Vet.
ED SPEAR PHILLIPS,	Ingalls,	Vet.
EDWIN PRENTISS STANTON,	Parkton,	Vet.
AUBREY LANCE TARKENTON,	Woodard,	Agr.
HENRY THOMAS WATKINS,	Blanche,	Agr.

ONE-YEAR COURSE IN AGRICULTURE.

Name	*Post Office.*
ROBERT LEE AUSTIN,	Burnt Hill.
JAMES WILLIAM BROTHERS,	Lagrange.
GRADY CRANFORD,	Riley's Store.
EDWARD NORFLEET CREWS,	Dabney.
WILLIAM RAIFORD EWING,	Manchester.
FRANKLIN HARRIS GLENN,	Lawndale.
RICHARD BREWER JOSEY,	Scotland Neck.
VIRGINOUS CLAIBORNE KILBY,	Danville, Va.
EDGAR ARCHIE MCAULEY,	Dunlap.
DENNIS TORBET MCLAWHORN,	Winterville.
LUCIUS MARVIN MASSEY,	Durham, R. 2.
JOB COY METTS,	Richlands, R. 2.
EVART WINSTON MILLER,	Winfall.
EDWARD LEE PITT,	Elm City, R. F. D.

Name.	*Post Office.*
PEARSON JONES POPLIN,	Norwood, R. 1.
BERNICE LANGDON POWELL,	Warsaw.
MARK HERMAN SMITH,	Greenville, R. 1.
FRANCIS STEVENSON STIKELEATHER,	Taylorsville.
GRIGG THOMAS TYSON, JR.,	Greenville.

WORK COURSE—AGRICULTURE.

First Year.

WILLIAM MONROE ANDREWS,	Fairmont.
CHARLES HENRY BAUGH, JR.,	Raleigh.
WILLIAM RALPH BRITT,	Garner, R. 1.
ROBERT RANSOM CORPENING,	Lenoir.
LYNN WALKER HARKEY,	Charlotte.
CHARLES DICKERSON KIRKPATRICK,	Charlotte, R. 2.
ROBERT RAYMOND MORRISON,	Concord.
CLARENCE LEE RAMSEUR,	Bessemer City.
WILLIAM HERBERT ROSS,	Charlotte, R. 1.
WILLIAM BROWN SAMPLE,	Charlotte, R. 1.
CHARLES PAUL WRENN,	Siler City.

Second Year.

SHUFORD GRAY ADAMS,	Yadkinville.
EARL EMMETTE ALLISON,	Concord.
GEORGE MARK GOFORTH,	Lenoir, R. 4.
ALBERT ALEXANDER GRAVES,	Cana.
ALBERT WALKER MASSEY,	Barium Springs.
WILLIAM RANSOM MIDDLETON,	Garner.
WILLIAM ARTHUR PRUITT,	Calvert.
DONALD PAYNE SMITH,	Concord.
ROBERT MCKINLEY STAFFORD,	Harrisburg, R. 1.
FRANK MACANALLY TOWNSEND,	Greensboro, R. 4.
MARION GRAY VANN,	Fayetteville.
PERCY STANLEY WHITE,	Greensboro.

WORK COURSE—TEXTILE.

ROBERT FRANKS PERKINS,	Morganton.
OSCAR HARLAN WITHERSPOON,	Catawba, R. 1.

WINTER COURSE IN AGRICULTURE.

CHARLES AIRIS BALLENTINE,	Cardenas.
ROSCOE CONKLING BARRETT,	Carthage.
ROY ALLEN BAUCOM,	Raleigh.

Name.	*Post Office.*
ROBERT VANCE BEALL,	Potecasi.
WILLIE FLETCHER BEARD,	Cedar Creek, R.1.
LEWIS EARL BLACKMAN,	High Point.
BRYANT BANCROFT CAPEHART,	Ronda, R. 2.
WILLIAM HARDY CHAMBLEE, JR.,	Zebulon, R. 2.
SHUBE SAMUEL CLARK,	Greensboro, R. 1.
JAMES LEONARD CRAIG,	Sanford.
WILLIAM BURTON CRAWFORD,	Statesville.
BENJAMIN FRANKLIN CRUTCHFIELD,	Thomasville.
GROVER WILLEY DEES,	Pikeville.
ERNEST FRANKLIN EDWARDS,	Ronda.
JOHN BRADY FELTS,	Elkin.
FRED GRADY GOODMAN,	Concord, R. 2.
ROBERT STERLING GRAVES,	Yanceyville.
PAUL BALLINGER GROOME,	Greensboro, R. 3.
JAMES ALEX HOLT,	Sanford.
WILLIE JAMES HUBBARD,	Stedman, R. 1.
JOHN STEPHEN LEFEVRE,	Weaverville.
JOHN PRESSLY MASON,	Kings Mountain.
HORACE PARKER NELSON,	Mackton, Md.
PERCY FINGER PEGRAM,	Ellerbe.
CHARLES A. PREVOST, JR.,	Mineral Ridge, Ohio.
GREEN REA,	Matthews, R. 27.
JOSEPH WILLIAM REDMON,	Swannanoa.
HERBERT LESTER RITCHIE,	Concord.
GUY ALEXANDER SHIELDS,	Huntersville, R. 20.
RALPH CALVIN STANTON,	Asheville.
SHUFORD STARNES,	Granite Falls.
LEONIDAS LAYFETTE THOMAS,	Jonesboro.
HARVEY BRYAN WADSWORTH,	Cove City.
OWEN CLEOLAND WALL,	Cooleemee.
ALEXANDER ERNEST WALLER,	Fair Bluff.

WINTER TEXTILE COURSE.

JAMES MUNROE BLUE,	Davidson.
WILLIAM EMMETT RATCLIFFE,	Raleigh.

MAY SCHOOL FOR TEACHERS.

JUANITA ELSIE HOLT,	Apex, R. 5.
ESSIE JANE GRAHAM,	Rockingham, R. 3.
MATILDA GRAY,	Cullasaja.
ANNIE HAWKINS,	Brown Summit, R. 2.

Name.	*Post Office.*
BETTIE CAROLINE HUNTER,	Chinquapin, R. 1.
ELIZABETH MCLAUGHLIN,	Carthage, R. 2.
NEWTON CARLYLE MARTIN,	Carpenter, R. 2.
LULA MYRTLE MOORE,	Saxapahaw, R. 1.
BETTIE WESTBROOK,	Princeton, R. 3.
MARY ANN ARNOLD,	Cameron, R. 2.

SUMMER SCHOOL FOR DEMONSTRATION AGENTS.

AUGUST, 1913.

Name.	*Post Office.*	*County.*
C. R. HUDSON,	Raleigh.	Wake.
T. E. BROWNE,	West Raleigh.	Wake.
A. K. ROBERTSON,	West Raleigh.	Wake.
E. S. MILLSAPS,	Statesville.	Iredell.
T. D. MCLEAN,	Carthage.	Moore.
BRUCE ANDERSON,	Winston-Salem,	Forsythe.
J. A. AREY,	Elmwood,	Iredell.
J. A. BOONE, JR.,	Lumberton,	Robeson.
Z. V. BLUE,	Carthage,	Moore.
G. R. BENNETT,	Enfield,	Halifax.
M. A. BENNETT,	Jackson Springs,	Montgomery.
J. W. CAMERON,	Polkton,	Anson.
W. H. CHAMBLEE, JR.,	Zebulon,	Wake.
S. E. COBLE,	Asheboro,	Randolph.
J. B. COX,	Jacksonville,	Onslow.
MCDONALD DAVIS,	Clinton,	Sampson.
W. H. EVANS,	Rich Square,	Northampton.
E. M. FEARINGTON,	Riggsbee,	Chatham.
S. N. FERGUSON,	Bladenboro,	Bladen.
J. M. GRAY,	Durham,	Durham.
R. W. FREEMAN,	Salisbury,	Rowan.
G. M. GOFORTH,	Lenoir,	Caldwell.
R. W. GRAEBER,	Charlotte,	Mecklenburg.
T. J. HARRIS,	Louisburg,	Franklin.
A. G. HENDREN,	Straw,	Wilkes.
J. J. HENDREN,	Chadbourn,	Columbus.
J. H. HENLY,	Sanford,	Lee.
J. P. HERRING,	Wilmington,	New Hanover.
O. J. HOWELL,	Goldsboro,	Wayne.
G. F. HUBBARD,	Fayetteville,	Cumberland.
HERBERT JENKINS,	Aulander,	Bertie.

Name.	*Post Office.*	*County.*
J. W. JOHNSON,	Mount Airy,	Surry.
J. F. LATHAM,	Jessama,	Beaufort.
N. A. LAYTON,	White Oak,	Bladen.
R. L. LIPE,	Richfield,	Stanly.
C. MCARTAN,	Lillington,	Harnett.
J. E. MEREDITH,	Thomasville,	Davidson.
C. P. MILLER,	Lincolnton,	Lincoln.
R. B. MOORE,	Morganton,	Burke.
ZENO MOORE,	Whitakers,	Edgecombe.
JOS. A. MORRIS,	Oxford,	Granville.
W. B. MURRILL,	Jacksonville,	Onslow.
F. B. NEWELL,	Warrenton,	Warren.
J. A. PATTERSON,	Airle,	Halifax.
I. G. ROSS,	Walnut Cove,	Stokes.
N. B. SEWELL,	Ahoskie,	Hertford.
A. L. SILER,	Franklin,	Macon.
J. A. SMITH,	Mt. Olive,	Wayne.
J. A. TURLINGTON,	Salemburg,	Sampson.
W. H. TURLINGTON,	Duke,	Harnett.
E. C. TURNER,	Mebane,	Alamance.
F. S. WALKER,	Reidsville,	Rockingham.
E. D. WEAVER,	Weaverville,	Buncombe.
J. C. WILLIAMS,	Swan Quarter,	Hyde.
P. C. WILLIAMS,	Chapel Hill,	Orange.
C. N. WOODS,	Cedar Grove,	Orange.

SUMMARY.

By Classes.

Graduate	14
Senior	73
Junior	82
Sophomore	123
Freshman	240
Short Courses:	
Agricultural, 2 years	14
Mechanic Arts, 2 years	24
Textile, 2 years	8
Agricultural, 1 year	19
Agricultural, work, 2 years	23
Veterinary, 2 years	12
Agricultural, winter, 7 weeks	35
Textile, winter, special	2
May School, 2 weeks	10
Special students	1
Textile, work	2
Total	682

By Courses.

Agricultural, including short courses in agriculture and veterinary science	302
Chemical	23
Civil Engineering	101
Mechanical Engineering, including Mechanical Arts	99
Electrical Engineering	114
Textile, including short courses	42
Special students	1
Total	682
Summer School for Demonstration Agents	56

TWENTY-FOURTH ANNUAL COMMENCEMENT.

MAY, 1913.

DEGREES CONFERRED.

BACHELORS OF SCIENCE.

In Agriculture.

Lewis Allen Ammon,
Roger Moore Bailey,
Edwin Dennis Bowditch,
Thomas Alexander Cole,
Roy Durant Goodman,
Riley Weaver Higgins,
Peter Armstrong Holt,
Harvey Langill Joslyn,
Louis Braswell Knight,
Robert Tolar Melvin,
William Timothy Nixon,
John Olan Rankin, Jr.,
Robert Lee Sloan,
Colin George Spencer,
John Brown Steele,
Charles Berryhill Stowe.

In Chemistry.

Gilbert Luther Arthur, Jr.,
Brice Legrier Caldwell,
John Bennett Craven,
Liston Lloyd Dail.

BACHELORS OF ENGINEERING.

In Civil Engineering.

Paul Dexter Davis,
Cicero Fred Gore,
Winston Payne Gwathmey,
Felix Stanton Hales,
Thomas Jasper Hewitt,
Walter Cleary Hopkins,
Douglas Creelman Jeffrey,
Morris Liferock,
Lewis Larkins Merritt,
David Walter Seifert,
William Dudley Simpson,
Francis Clark Smith.

In Electrical Engineering.

Charles Albion Bache,
Amos Baxter Clement,
William Randolph Clements,
Percy Bell Ferebee,
Ernest Judson Jeffress,
James Wright Johnson,
George Edison Kidd,
Robert Sylvanus Mauney,
Thad. Rowland Parrish,
Garland Thomas Rowland,
William Beaver Stover,
Stanton Banks Sykes,
Alvin Chesley Wilson.

In Mechanical Engineering.

Hermon Burke Briggs,
Daniel Burnie Floyd,
Earl Montier Evans,
Samuel Benjamin Howard,
Frank Whiteside McComb,
Thomas Kenneth Mial,
Walter Herbert Parker,
Frank Steed Smith.

In Textile Industry.

Charles Ganzer Hall,
LeRoy Corbett Hand,
Thomas Roy Hart,
Thomas Hector Purcell,
Henry Aubrey Quickel,
Walter Clyburn Taylor.

CIVIL ENGINEERS.

John Leland Becton,
John Davidson Spinks.

MECHANICAL ENGINEERS.

John Harvey Bryan,
Robert Eugene Forbis,
James Alexander Powell.

ELECTRICAL ENGINEER.

William Ransome Phillips.

MASTER OF SCIENCE.

In Chemistry.

William Franklin Pate.

HONORS.

HONORS IN SCHOLARSHIP.

For Four Years.

E. D. Bowditch,
P. D. Davis,
F. S. Hales,
T. J. Hewitt,
M. Liferock,
R. T. Melvin.

FOR 1912-1913.

Senior Class.

L. A. Ammon,
E. D. Bowditch,
H. B. Briggs,
W. R. Clements,
P. D. Davis,
R. D. Goodman,
F. S. Hales,
T. R. Hart,
T. J. Hewitt,
H. L. Joslyn,
G. E. Kidd,
M. Liferock,
R. S. Mauney,
R. T. Melvin,
T. K. Mial,
T. R. Parrish,
H. A. Quickel,
G. T. Rowland,
A. C. Wilson.

Junior Class.

C. R. Bailey,
H. V. Biberstein,
E. C. Blair,
V. W. Breeze,
J. R. Buchanan,
H. W. Bullard,
L. M. Craig,
J. Fontaine,
W. B. Little,
M. L. Livermon,
M. R. Quinerly,
J. B. Rees,
D. E. Roberts,
J. M. Roberts,
J. W. Ross,
W. T. Shaw,
E. W. Waldroup
J. W. Watts.

Sophomore Class.

H. M. Alexander,
B. M. Blount,
J. C. Carpenter,
R. Crowder,
D. Dailey,
L. P. Denmark,
L. A. Doub,
W. K. Eldridge,
R. H. Feild,
A. C. Fluck,
J. H. Hall, Jr.,
R. W. Hamilton, Jr.,
R. P. Harris,
V. R. Hermon,
D. L. Hooper,
J. S. Howard,
G. L. Jeffers,
W. F. Kilpatrick,
F. K. Kramer,
J. E. McNeely,
W. D. Martin,
J. D. Ray,
W. I. Smith,
P. E. Snead,
H. Spencer,
J. E. Trevathan,
B. White.

Freshman Class.

C. S. Abernethy,
F. A. Baker,
J. V. Champion,
A. S. Cline,
S. G. Crater,
S. M. Credle,
J. D. Duval,
K. L. Greenfield,
R. H. Hodges,
E. K. Herman,
L. B. Johnson,
C. J. Pruett,
H. Rankin,
L. B. Ray,
V. A. Rice,
R. M. Ritchie,
K. Sloan,
R. L. Tatum,
G. W. Underhill,
G. H. Webb,
F. E. Wysong.

Two-Year Mechanic Arts.

FIRST YEAR.

F. S. Kluttz,
L. B. Ward.

SECOND YEAR.

D. R. Holt.

Two-Year Course in Agriculture.

R. E. Lawrence,
G. F. Miller.

Work Course in Agriculture.

S. G. Adams,
G. M. Goforth,
W. R. Middleton.

Honors for Punctuality.

S. G. Adams,
T. W. Brooks,
J. R. Buchanan,
A. S. Cline,
J. C. Collier,
R. Crowder,
R. H. Feild,
A. C. Fluck,
J. A. Frazier,
G. M. Goforth,
A. N. Goodson,
D. L. Hooper,
L. John,
L. B. Johnson,
W. A. Kennedy,
J. F. Neely, Jr.,
L. B. Ray,
J. W. Ross,
C. R. Russell,
D. P. Smith,
W. H. Smith,
R. L. Tatum,
J. S. Upton,
M. G. Vann,
J. F. Williams.

REGISTER OF ALUMNI.

Name.	*Degree.*	*Address.*
DURANT STEWART ABERNETHY,	B.E. 1906,	Charlottesville, Va.
Resident Engineer, Southern Railway.		
LEROY FRANKLIN ABERNETHY,	B.Agr. 1905,	Hickory, N. C.
Abernethy Hardware Company.		
NELSON ADAMS,	B.E. 1904,	McColl, S. C.
Farmer.		
HAYWOOD LEWIS ALDERMAN,	B.E. 1904,	Greensboro, N. C.
Division Superintendent in Operating Department, Southern Power Co.		
KEMP ALEXANDER,	B.E. 1900,	Ashboro, N. C.
Superintendent Acme Hosiery Mills.		
NEILY ORMOND ALEXANDER,	B.S. 1912,	Matthews, N. C.
Farmer.		
WILLIAM DAVIDSON ALEXANDER, JR.,	B.S. 1899,	Charlotte, N. C.
Civil and Hydraulic Engineer, and Engineer Mecklenburg Drainage Commission.		
DANIEL ALLEN,	B.S. 1896,	Raleigh, N. C.
Farming and Real Estate.		
GEORGE GILDEROY ALLEN,	B.E. 1906,	Concord, N. C.
Overseer of Carding, Gibson Mfg. Co.		
LESLIE LYLE ALLEN,	B.E. 1900,	Spartanburg, S. C.
Cotton Merchant.		
ROBERT WILSON ALLEN,	B.E. 1893,	Sanford, N. C.
Superintendent of Schools.		
LEWIS ALLEN AMMON,	B.S. 1913,	Escuela, Ariz.
Farmer, Tucson Indian Training School.		
JOHN CAMILLUS APP,	B.S. 1908,	Charleston, W. Va.
Real Estate, Insurance.		
JOHN ALLEN AREY,	B.S. 1909,	Elmwood, N. C.
M.S. 1910. Commissioner of Agriculture of Iredell County.		
GILBERT LUTHER ARTHUR, JR.,	B.S. 1913,	Raleigh, N. C.
Clerk Southern Railway.		
DORSEY FROST ASBURY,	B.S. 1898,	Washington, D. C.
Leading Ordnance Draftsman, U. S. Naval Gun Factory.		
GEORGE PAGE ASBURY,	B.E. 1906,	Washington, D. C.
Engineer, Draftsman, Southern Railway.		
SAMUEL ERSON ASBURY,	B.S. 1893,	College Station, Tex.
M.S. 1896. Assistant State Chemist.		
SYDNEY WOODWARD ASBURY,	B.E. 1904,	Charlotte, N. C.
Heating Engineer and Architectural Draftsman, with Louis H. Asbury, Architect.		

Name.	*Degree.*	*Address.*
THOMAS MARTIN ASHE,†	B.E. 1895,	Raleigh, N. C.
ROBERT JAMES AVERY,	B.Agr. 1905,	Park, Va.
Avery Brothers, Railroad Contractors.		
ROBERT KENNETH BABINGTON,	B.E. 1910,	Gastonia, N. C.
Engineering Department, Piedmont Telephone and Telegraph Co.		
CHARLES ALBION BACHE,	B.E. 1913,	Lynn, Mass.
Testing Department, General Electric Co.		
OSCAR LUTHER BAGLEY,	B.S. 1905,	Goldsboro, N. C.
Clerk in Union Depot, A. C. L. R. R. Co.		
EUGENE CLEVELAND BAGWELL,	B.E. 1904,	Norfolk, Va.
Assistant Engineer, Seaboard Air Line Railway.		
EDWARD PAR BAILEY,	B.E. 1904,	Wilmington, N. C.
President Wilmington Iron Works and General Manager Marine Railway Co.		
ROGER MOORE BAILEY,	B.S. 1913,	Elm City, N. C.
Bookkeeper for John L. Bailey.		
WILLIAM BAILEY,	B.E. 1911,	Cheraw, S. C.
Yadkin River Power Co.		
FRANK OSCAR BALDWIN,	B.S. 1908,	Richmond, Va.
Director of Settling Basins and Laboratory, Richmond City Waterworks.		
WILLIAM HERBERT DOUGHTY BANCK,	B.E. 1909,	Wilmington, N. C.
Civil Engineer.		
IRA WILSON BARBER,	B.S. 1899,	Mount Airy, N. C.
Superintendent Electric Light and Power Plant and Waterworks.		
JAMES CLAUDIUS BARBER,	B.E. 1904,	Barber, N. C.
Farmer.		
TOLLIE CHESTER BARBER,	B.E. 1911,	Cliffside, N. C.
Cliffside Mills.		
WILLIAM WALTER BARBER,	B.E. 1904,	Marks, Miss.
With Riverside Lumber Co.		
FLETCHER HESS BARNHARDT,	B.E. 1901,	Phœnixville, Pa.
Assistant Engineer, The Phœnix Bridge Co.		
WILLIAM ALEXANDER BARRETT,	B.E. 1904,	Missoula, Montana.
Electrical Engineer, Missoula Light and Water Co.		
GEORGE FRANCIS BASON,	B.E. 1908,	Ampere, N. J.
Drafting Room, Crocker-Wheeler Co.		
HERBERT SCANDLIN BATTIE,	B.E. 1907,	Philadelphia, Pa.
Resident Engineer, Scofield Eng. Co.		
JOHN MANN BEAL,	B.S. 1911,	Agr. College, Miss.
M. S. 1913, Miss. A. & M. Instructor in Botany, Miss. Agricultural and Mechanical College. Plant Pathology work with Miss. Agr. Exp. Station.		
JAMES CLAUDIUS BEAVERS,	B.Agr. 1906,	Lafayette, Ind.
Associate in Soils and Crop Extension, Perdue Agricultural Exp. Station.		

† Deceased.

Name.	*Degree.*	*Address.*
SIDNEY HAMILTON BECK,*	B.S. 1898,	Washington, D. C.
Marine Engine and Boiler Draftsman, Navy Department.		
JOHN LELAND BECTON,	B.E. 1908,	Wilmington, N. C.
C.E., 1913. Civil Engineer.		
HARWOOD BEEBE,	B.E. 1908,	Norwood, N. C.
CHARLES EDWARD BELL,	B.S. 1911,	Raleigh, N. C.
Assistant Food Chemist, N. C. Department of Agriculture.		
NEEDHAM ERIC BELL,	B.S. 1906,	Montgomery, Ala.
Soil Surveyor, State of Alabama.		
WILLIAM OSBORNE BENNETT, JR.,	B.E. 1901,	Maxton, N. C.
Manager Elba Manufacturing Co.		
ROBERT LINN BERNHARDT,	B.S. 1900,	Salisbury, N. C.
Secretary-Manager Salisbury Hardware and Furniture Co.		
LESLIE GRAHAM BERRY,	B.E. 1900	Charlotte, N. C.
Manager Southern Engineering Co.		
JOHN HENDERSON BIRDSONG,	B.S. 1899,	Chicago, Ill.
Chief Chemist and Metallurgist, The National Malleable Castings Co.		
JOE PITTMAN BIVENS,	B.E. 1907,	Charlotte, N. C.
Member of firm of Michael & Bivens, Electrical Construction.		
JAMES ADRIAN BIZZELL,	B.S. 1895,	Ithaca, N. Y.
M.S. 1900. Ph.D. 1903, Cornell Univ. Prof. Soil Technology, N. Y. State College of Agriculture.		
FRED MCCULLOUGH BLACK,	B.E. 1910,	Wilkinsburg, Pa.
Erecting Department, Westinghouse Electric and Manufacturing Co., East Pittsburgh, Pa.		
KENNETH LEON BLACK,	B.E. 1906,	Richmond, Va.
K. L. Black & Co., Engineers and General Contractors.		
WILLIAM LAMAR BLACK,	B.E. 1908,	Charlotte, N. C.
Southern Power Co.		
JOHN ISHAM BLOUNT,	B.E. 1895,	Birmingham, Ala.
C.E. 1897. J. I. Blount & Co., and The Blount Specialty Co.		
WILLIAM MORTON BOGART,	B.E. 1903,	Dallas, Tex.
Contracting Engineer, General Fire Extinguisher Co. of Texas.		
ALLISON HODGES BOND,	B.E. 1912,	Salisbury, N. C.
Real Estate, Insurance, Investments.		
THOMAS SAWYER BOND,	B.E. 1910,	Laredo, Tex.
Resident Engineer Texas-Mexican Railway Co. Home Address, Windsor, N. C.		
LESLIE NORWOOD BONEY,	B.E. 1903,	Goldsboro, N. C.
Architect.		
FRED. WILHELM BONITZ,	B.E. 1901,	Wilmington, N. C.
Lawyer, Engineering Department of Standard Oil Co.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
HENRY EMIL BONITZ,	B.E. 1893,	Wilmington, N. C.
Architect.		
WILLIAM DAVID BOSEMAN,	B.E. 1902,	Rocky Mount, N. C.
Farmer, with R. H. Ricks.		
ZOLLY MOSBY BOWDEN,	B.E. 1901,	Mulberry, Fla.
Electrician, Florida Mining Co.		
EDWIN DENNIS BOWDITCH,	B.S. 1913,	Toecane, N. C.
Farmer.		
ROY BOWDITCH,	B.E. 1910,	Schenectady, N. Y.
Testing Department, General Electric Co.		
ALAN THURMAN BOWLER,	B.E. 1912,	Raleigh, N. C.
Paying Teller, Citizens National Bank.		
ASA GRAY BOYNTON,	B.E. 1908,	Biltmore, N. C.
Civil Engineer, Biltmore Estate.		
CARL RAY BRADLEY,	B.E. 1910,	St. Louis, Mo.
Motor Engineering Department, Wagner Electric Manufacturing Co.		
JAMES WASHINGTON BRAWLEY,	B.S. 1895,	Greensboro, N. C.
Secretary and Treasurer Real Estate and Trust Co.		
JOHN BENJAMIN BRAY,	B.E. 1911,	Raleigh, N. C.
Highway and Municipal Engineer.		
THOMAS JOHNSON BREVARD,*	B.S. 1910,	St. Paul, Minn.
Twin City Transportation Co.		
HERMON BURKE BRIGGS,	B.E. 1913,	Raleigh, N. C.
Instructor, N. C. College of Agriculture and Mechanic Arts.		
BENJAMIN ALEXANDER BROOM,	B.E. 1905,	Sioux City, Iowa.
Designing and Supervising Engineer for Light, Heat and Power Co.		
CECIL DEWITT BROTHERS,	B.E. 1909,	Sao Paulo, S. P., Brazil.
With Brazilian Railways.		
BEDFORD JETHRO BROWN,	B.E. 1901,	Charlotte, N. C.
In Charge of Meter Department, Southern Power Co.		
CLAYTON EDWARD BROWN,	B.E. 1912,	Erlanger, Ky.
Levelman, Cincinnati, New Orleans and Texas Pacific R. R. Co.		
FRANK HAMILTON BROWN,	B.Agr. 1908,	Cullowhee, N. C.
Teacher of Science and Agriculture, Cullowhee Normal and Industrial School.		
JOEL EDWARD BROWN,	B.S. 1911,	Grimes, Cal.
Clerk, Smith Co.		
JAMES HOWARD BROWN,	B.S. 1911,	Kansas City, Mo.
M.S. 1912. Student, Kansas City Veterinary College.		
WILLIAM BACHMAN BROWN,	B.E. 1911,	Glass, N. C.
Interstate Commerce Commission, Railway Valuation.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
STEPHEN COLE BRUNER,	B.S. 1912,	Raleigh, N. C.
Agent, Office of Forest Pathology, Bureau of Plant Industry, U. S. Department of Agriculture.		
THOMAS KINCAID BRUNER,	B.E. 1910,	Nashville, Tenn.
Clerk, Tenn. Central R. R. Co.		
CARNEY JOHN BRYAN,	B.E. 1907,	Panama City, Fla.
Wholesale Fish Dealer.		
JOHN HARVEY BRYAN	B.E. 1908,	Wilkinsburg, Pa.
M.E. 1913. Sales Dept., Westinghouse Electric and Mfg. Co.		
GUY KEDAR BRYAN,*	B.E. 1911,	Jacksonville, Fla.
Civil Engineer, with J. P. Middlemas.		
KIT BRYAN,	B.E. 1911,	Manila, P. I.
Surveyor, Bureau of Lands.		
ELTON ELROY BUCK,	B.E. 1910,	Bridgeport, Conn.
Block Map Department, City Engineer's Office.		
JOSEPH SAMUEL BUFFALOE,	B.S. 1897,	Garner, N. C.
Physician.		
JOEL W. BULLOCK,	B.Agr. 1905,	Dabney, N. C., R. 1.
Farmer.		
WALTER AUSTIN BULLOCK,	B.S. 1895,	Cayey, Porto Rico.
Division Superintendent, Porto Rico American Tobacco Co.		
JAMES HARRY BUNN,	B.E. 1900,	Henderson, N. C.
Superintendent Henderson Cotton Mills and Croatan Spinning Mills.		
WILLIAM BRYANT BURGESS,	B.E. 1908,	Portsmouth, Va.
Electrical Draftsman, Government Navy Yard, Norfolk.		
WILLIAM ANDERS BUYS,	B.E. 1906,	Belhaven, N. C.
Civil Engineer, The Interstate Cooperage Co.		
VON PORTER BYRUM,	B.E. 1911,	N. Lawndale, Fla.
Operating Engineer Southern Utilities Co. of Jacksonville, Fla.		
BRICE LEGRIER CALDWELL,	B.S. 1913,	Concord, N. C.
With J. C. Willeford Jewelry Co.		
LINDSAY FERGUSON CARLTON,	B.E. 1907,	Pittsburgh, Pa.
Sales Engineer H. W. Johns-Manville Co.		
JOHN SAMUEL P. CARPENTER,	B.E. 1903,	Cherryville, N.C.
Member Board of Directors and Superintendent Melville Manufacturing Co.		
JOHN WILLIAM CARROLL,	B.S. 1897,	Wallace, N. C.
Physician.		
ROBERT HILL CARTER,	B.E. 1907,	La Fundicion, Peru, S. A.
Electrician Cerro De Pasco Mining Co.		
HENRY BROZIER CARTWRIGHT,	B.E. 1905,	Jacksonville, Fla.
Assistant Engineer, Seaboard Air Line Ry.		
HENRY ROY CATES,	B.S. 1911,	Washington, D. C.
U. S. Department of Agriculture, Bureau of Plant Industry. Office of Farm Management.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
JUNIUS SIDNEY CATES,	B.S. 1902,	Richmond, Va.
M.Agr. 1904. Editor Southern Planter.		
WILLIAM MILLER CHAMBERS,	B.E. 1905,	Maben, W. Va.
Auditor, W. M. Ritter Lumber Co.		
MARK HOPKINS CHESBRO,	B.Agr. 1906,	Kelowna, B. C.
Studying Modern Methods of Irrigation as Applied to Horticulture.		
CONNOR CALHOUN CLARDY,	B.E. 1906,	Los Angeles, Cal.
Los Angeles Office, General Electric Co.		
CHARLES EDWARD CLARK,	B.S. 1897,	Hoffman, N. C.
Superintendent Broadacre Farm.		
DAVID CLARK,	B.E. 1895,	Charlotte, N. C.
M.E. 1896; C. E. 1897. Owner and Editor *Southern Textile Bulletin.*		
JAMES DUNCAN CLARK,	B.S. 1906,	Tampa, Fla.
President Peninsular Paper Co. Manager Ingleside Orange Groves.		
JOHN WASHINGTON CLARK,	B.E. 1906,	West Durham, N. C.
B.E. (Tex.) 1907. Superintendent of Erwin Bleaching and Furnishing Plant.		
THORNE MCKENZIE CLARK,	B.E. 1909,	Fayetteville, N. C.
Cashier The Fourth National Bank.		
WALTER CLARK, JR.,	B.E. 1903,	Raleigh, N. C.
Lawyer.		
WILLIAM ALEXANDER GRAHAM CLARK,	B.S. 1897,	Washington, D. C.
M.E. 1899. Commercial Agent U. S. Department Commerce.		
SAMUEL HERBERT CLARKE,	B.E. 1906,	Richmond, Va.
With H. Clarke & Sons.		
HENRY CALEB CLAY,	B.E. 1911,	Great Falls, Mont.
Anaconda Copper Mining Co., Engineering Department.		
WILEY THEODORE CLAY,	B.E. 1906,	West Raleigh, N. C.
M.E. 1909. N. C. College of Agriculture and Mechanic Arts.		
AMOS BAXTER CLEMENT,	B.E. 1913,	Wilkinsburgh, Pa.
Engineering Apprentice, Westinghouse Electric and Mfg. Co.		
WILLIAM RANDOLPH CLEMENTS,	B.E. 1913,	Wilkinsburgh, Pa.
Student Apprentice, Westinghouse Electric and Mfg. Co.		
ROBERT BAXTER COCHRAN,	B.E. 1902,	Norwood, Ohio.
Chief Inspector, Bullock Electric Manufacturing Co.		
ANSON ELIKEM COHOON,	B.S. 1898,	Portland, Oregon.
Forest Supervisor, Forest Service, U. S. Department of Agriculture.		
JOHN ELIOT COIT,	B.Agr. 1903,	Berkeley, Cal.
Professor of Citriculture and Semitropical Pomology, University of California.		
THOMAS ALEXANDER COLE,	B.S. 1913,	Lexington, N. C.
State and County Farm Demonstrator.		
PAUL COLLINS,	B.S. 1901,	New Haven, Conn.
Analytical and Consulting Chemist.		

Name.	*Degree.*	*Address.*
GEORGE WASHINGTON CORBETT, JR.,	B.E. 1895,	Currie, N. C., R. 2.
Proprietor, Corbett & Corbett, Saw and Planing Mills.		
SUMMEY CROUSE CORNWELL,	B.E. 1903,	Shelby, N. C.
Cornwell-Hedleston Co., Engineers.		
CHARLES EDWARD CORPENING,	B.E. 1894,	Lenoir, N. C., R. 3.
Farmer and Lumber Dealer.		
LEWELLYN HILL COUCH,	B.E. 1908,	Hamlet, N. C.
Superintendent, Yadkin River Power Co.		
WALTER MILLER COWLES,	B.E. 1909,	Pittsburgh, Pa.
In Charge of Mechanical Dept., Fiat Auto Co., under E. J. Thompson Co.		
DAVID COX,	B.E. 1894,	Hertford, N. C.
Civil Engineer and Timber Dealer and Estimator.		
DUNCAN ARCHIBALD COX,	B.S. 1906,	Rowland, N. C.
Secretary-Treasurer and Salesman, Pleasant-Cox Hardware Co.		
WILLIAM PESCUD CRAIG,	B.S. 1901,	Marion, N. C.
JOHN BENNETT CRAVEN,	B.S. 1913,	Chicago, Ill.
Chemist, People's Gas, Light and Coke Co.		
WILLIAM LOIS CRAVEN	B.E. 1901,	York, Pa.
Designer and Estimator, York Bridge Co.		
CHARLES LESTER CREECH,	B.S. 1903,	Winston-Salem, N. C.
Sales Manager, J. C. Spach Wagon Works.		
ALEXANDER DOANE CROMARTIE,	B.Agr. 1906,	Garland, N. C.
Farmer; County Agent of Farmers' Coöperative Demonstration Work.		
WILLIAM HENRY CROW,	B.E. 1910,	Monroe, N. C.
Superintendent Water, Light and Power Plant.		
CHARLES LEE CRUSE,	B.S. 1912,	Kansas City, Mo.
Student, Kansas City Veterinary College.		
FELIX GRAY CRUTCHFIELD,	B.E. 1901,	Winston-Salem, N. C.
Superintendent Winston-Salem Construction Co.		
EUGENE ENGLISH CULBRETH,	B.E. 1903,	Raleigh, N. C.
Commercial National Bank.		
HUGH MCCULLOM CURRAN,*	B.S. 1898,	Manila, P. I.
Forestry Service, Philippine Government.		
LISTON LLOYD DAIL,	B.S. 1913,	Ensley, Ala.
Chemist, Tennessee Coal and Iron Co.		
EDWIN SPEIGHT DARDEN,	B.S. 1895,	Stantonsburg, N. C.
Farmer; Bookkeeper for Stantonsburg Supply Co.		
WALTER LEE DARDEN,	B.E. 1903,	Portsmouth, Va.
Chief Draftsman, Seaboard Air Line Railway.		
JOSEPH FRANK DAVIDSON,	B.E. 1909,	Gatun, C. Z., Panama.
GEORGE MASLIN DAVIS,	B.E. 1901,	Roanoke, Va.
Draftsman, Mechanical Engineer's Office, N. & W. Ry.		

*Not heard from this year.

Name.	*Degree.*	*Address.*
PAUL DEXTER DAVIS,	B.E. 1913,	Charlotte, N. C.
Facilities Clerk, Southern Bell Telephone and Telegraph Co.		
WILLIAM EARLE DAVIS,	B.E. 1910,	Connelly Sprgs., N. C.
Clerk Connelly Mineral Springs Hotel.		
WILLIAM HENERY DAVIS,	B.E. 1911,	Schenectady, N. Y.
General Electric Co.		
WILLIAM KEARNEY DAVIS,	B.E. 1895,	Marion, S. C.
Superintendent Marion Manufacturing Co.		
CLAUD COUNCIL DAWSON,	B.E. 1908,	Mayesworth, N. C.
Mayes Manufacturing Co.		
THOMAS THEODORE DAWSON,	B.E. 1910,	New Bern, N. C.
New Bern Veneer and Panel Co.		
RALPH CAMPBELL DEAL,	B.E. 1912,	Schenectady, N. Y.
Student, General Electric Co.		
WILLIAM SAMUEL DEAN,	B.E. 1909,	Washington, D. C.
Assistant Cotton Technologist, Bureau of Plant Industry, U. S. Department of Agriculture.		
ERNEST COFIELD DERBY,	B.E. 1912,	Earnest, N. C.
Highway Engineer.		
LOUIS REINHOLD DETJEN,	M.S. 1911,	West Raleigh, N. C.
N. C. Agricultural Experiment Station.		
EDWIN SEXTON DEWAR,	B.S. 1911,	Raleigh, N. C.
Assistant Chemist, North Carolina Department of Agriculture.		
JOSEPH CHARLES DEY,*	B.S. 1895,	Norfolk, Va.
JUNIUS FRANKLIN DIGGS,	B.S. 1903,	Rockingham, N. C.
Planter and Merchant.		
CARLTON O'NEAL DOUGHERTY,	B.E. 1909,	North, S. C.
Farmer.		
MCNEELY DU BOSE,	B.E. 1912,	Barcelona, Lerida, Spain.
Erecting Engineer for Riegos y Fuerza del Ebro, Seros Powerhouse.		
FRED. ATHA DUKE,	B.E. 1909,	Portsmouth, Va.
Civil Engineer, Seaboard Air Line Railway.		
JAMES LEONIDAS DUNN,	B.S. 1910,	Scotland Neck, N. C.
Farmer.		
ALVIN DEANS DUPREE,*	B.E. 1908,	Greenville, N. C.
Manager Insurance Department, Moseley Brothers' Agency.		
RAYMOND ROWE EAGLE,	B.E. 1908,	New Bern, N. C.
Civil Engineer.		
MINNIC LUTHER EARGLE	B.Agr. 1908,	Columbia, S. C.
Real Estate.		
JOHN IVEY EASON,	B.S. 1911,	Stantonsburg, N. C.
Farmer.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
JACOB TATUM EATON,†	B.Agr. 1907,	Farmington, N. C.
WILLIAM HUNT EATON,	B.S. 1909,	Raleigh, N. C.
Dairy Experimentalist, N. C. Experiment Station.		
LATTA VANDERION EDWARDS,	B.E. 1906,	Pullman, Wash.
C. E. 1911, Cornell Univ. Prof. of Railroad and Highway Engineering, Washington State College.		
SEBA ELDRIDGE,	B.E. 1907,	New York, N. Y.
Secretary Department of Social Betterment, Brooklyn Bureau of Charities.		
TIMOTHY ELDRIDGE,	B.E. 1904,	Mount Olive, N. C.
Superintendent Electric Light Plant and Waterworks.		
THEOPHILUS THOMAS ELLIS,	B.E. 1903,	Henderson, N. C.
Farmer.		
WELDON THOMPSON ELLIS,	B.E. 1906,	West Raleigh, N. C.
M.E. 1908. Assistant Professor of Mechanical Engineering, N. C. College of Agriculture and Mechanic Arts.		
LEE BORDEN ENNETT,	B.S. 1895,	Cedar Point, N. C.
Superintendent of County Public Schools and Farmer.		
ALBERT EDWARD ESCOTT,	B.E. 1906,	Charlotte, N. C.
Secretary and Treasurer, The Mill News.		
WILLIAM CARLYLE ETHERIDGE,	B.Agr. 1906,	Ithaca, N. Y.
M.S. 1908. Graduate Student and Assistant in Cornell University.		
EARL MONTIER EVANS,	B.E. 1913,	Raleigh, N. C.
BENJAMIN BRYAN EVERETT,	B.Agr. 1907,	Palmyra, N. C.
M.S. 1911, University of Wisconsin. Farmer.		
JAMES BECKETT EWART,	B.E. 1906,	Harthorne, Ill.
Western Electric Co.		
RALPH RINGGOLD FAISON,	B.S. 1909,	Manila, P. I.
Lieutenant, Philippine Constabulary.		
WILLIAM ALEXANDER FAISON,	B.E. 1909,	Indiana Harbor, Ind.
Superintendent No. 2 Foundry, American Steel Foundries.		
ISAAC HERBERT FARMER,	B.E. 1908,	Portsmouth, Va.
Right of Way Engineer, Seaboard Air Line Railway.		
JAMES WILLIAM FARRIOR,	B.E. 1904,	Kenansville, N. C.
Physician.		
WILLIAM DOLLISON FAUCETTE,	B.E. 1901,	Portsmouth, Va.
C. E. 1910. Chief Engineer, Seaboard Air Line Railway.		
ISAAC HENRY FAUST,	B.E. 1895,	Ramseur, N. C.
Farmer and Contractor.		
BENJAMIN CAREY FENNELL,	B.S. 1898,	Atlanta, Ga.
M.E. 1900. Engineer and Contractor. Also General Manager Paulding County Power Co., of Dallas, Ga.		
JAMES LUMSDEN FEREBEE,	B.E. 1902,	Atlantic City, N. J.
Consulting Engineer, T. Chalkley Hatton, Constructing Engineer.		

† Deceased.

Name.	*Degree.*	*Address.*
PERCY BELL FEREBEE,	B.E. 1913,	Washington, D. C.
Transitman, U. S. Forest Service.		
BEBJAMIN TROY FERGUSON,	B.Agr. 1908,	Stantonsburg, N. C.
Farmer and Manager, Dr. S. H. Crocker.		
JOHN DANIEL FERGUSON,†	B.E. 1903,	Bladenboro, N. C.
JOHN LINDSAY FERGUSON,	B.E. 1907,	Culebra, Canal Zone.
Electrical Darftsman, Isthmian Canal Commission.		
NEVIN GOULD FETZER, †	B.S. 1912,	Concord, N. C.
WALTER GOSS FINCH,	B.E. 1905,	Washington, D. C.
Junior Engineer, U. S. War Department.		
WILLIAM WALTER FINLEY,	B.Agr. 1904,	Charlottesville, Va.
Proprietor Win Wilkes Farm.		
DANIEL BURNIE FLOYD,	B.E. 1913,	West Allis, Wis.
Apprentice Allis Chalmers Manufacturing Co.		
FRANK FULLER FLOYD,	B.E. 1893,	Knoxville, Tenn.
Vice-President and Sales Manager, Jellico Coal Mining Co.		
FRANK LINDSAY FOARD,	B.S. 1909,	Salisbury, N. C., R. 7.
Farmer.		
RUFUS EUGENE FORBIS,	B.E. 1910,	Charlotte, N. C.
Draftsman, Peter S. Gilchrist, Consulting Engineer.		
HUGH PIERCE FOSTER, †	B.E. 1903,	Person County.
SHIRLEY WATSON FOSTER,	B.Agr. 1906,	San Francisco, Cal.
Entomologist and Manager Insecticide Department, General Chemical Co. of California.		
GEORGE WASHINGTON FOUSHEE,	B.E. 1904,	Greensboro, N. C.
Secretary and Treasurer, Dicks Laundry Co.		
ELIAS VAN BUREN FOWLER,	B.E. 1907,	Darlington, S. C.
Agent Metropolitan Life Insurance Co.		
ROSCOE LOOMIS FOX,	B.E. 1909,	Kansas City, Mo.
Broker.		
FRANCIS MARION FOY, †	B.S. 1899,	Scott's Hill, N. C.
CHARLES DUFFY FRANCKS,	B.E. 1893,	Richlands, N. C.
Superintendent Richlands Graded Schools.		
GEORGE STRONACH FRAPS,	B.S. 1896,	College Station, Tex.
Ph.D., Johns Hopkins Univ. State Chemist of Texas. Chemist Texas Experiment Station. Chemist Texas Feed Control.		
ELMO VERNON FREEMAN,	B.E. 1911,	Charleston, W. Va.
E.E. 1913. Westinghouse Electric Manufacturing Co. Commercial Engineer, The Virginian Power Co.		
PERCY LEIGH GAINEY,	B.Agr. 1908,	Columbia, Mo.
M.S. 1910. Instructor in Botany, University of Missouri.		

† Deceased.

Name.	*Degree.*	*Address.*
EDGAR WILLIAM GAITHER,	B.S. 1904,	Wooster, Ohio.
First Assistant Chemist, Ohio Agricultural Experiment Station.		
JAMES JERVEY GANTT,	B.E. 1910,	Gastonia, N. C.
Assistant City Engineer.		
JUNIUS TALMAGE GARDNER,	B.E. 1908,	Shelby, N. C.
Shelby Insurance and Realty Co.		
OLIVER MAX GARDNER,	B.S. 1903,	Shelby, N. C.
Lawyer.		
CLEMENT LEINSTER GARNER,	B.E. 1907,	Washington, D. C.
United States Coast and Geodetic Survey.		
LEWIS PRICE GATTIS,	B.E. 1909,	Charleston, S. C.
Depot Ticket Agent, A. C. L. and So. Rys.		
EDWARD MOORE GIBBON,	B.E. 1893,	Jacksonville, Fla.
City Engineer for South Jacksonville.		
NICHOLAS LOUIS GIBBON,	B.S. 1897,	Southern Pines, N. C.
General Hardware, Building Material and Auto Specialties.		
SETH MANN GIBBS,	B.E. 1908,	Savannah, Ga.
Resident Engineer, Seaboard Air Line Railway.		
THOMAS FENNER GIBSON,	B.E. 1912,	Newark, N. J.
Draftsman, Passaic Valley Sewerage Commissioners.		
LAMAR CARSON GIDNEY,	B.E. 1903,	Rutherfordton, N. C.
Superintendent Rutherfordton Light and Waterworks.		
RICHARD F. GIERSCH, JR.,	B.E. 1912,	Barcelona, Lerida, Spain.
Erecting Engineer for Riegos y Fuerza del Ebro, Seros Powerhouse.		
LOVIC RODGERS GILBERT,	B.E. 1907,	Raleigh, N. C.
Superintendent Caraleigh Mills Co.		
RANSOM EATON GILL, †	B.E. 1910,	Raleigh, N. C.
ROY JOSEPH GILL,	B.E. 1907,	Manila, P. I.
Surveyor, Insular Government.		
GEORGE WILLIAM GILLETTE,	B.E. 1911,	Wilmington, N. C.
Master Mechanic, Tidewater Power Co.		
MAURICE MORDECAI GLASSER,	B.E. 1908,	Charleston, S. C.
Proprietor Standard Electric Co.		
JOHN HOWARD GLENN,†	B.E. 1903,	Crowder's Creek, N. C.
CHARLES WILLIS GOLD,	B.S. 1895,	Greensboro, N. C.
Treasurer Jefferson Standard Life Insurance Co.		
MOSES HENRY GOLD,	B.E. 1908,	Americus, Ga.
Division Engineer, Seaboard Air Line Railway.		
ROY DURANT GOODMAN,	B.S. 1913,	Concord, R. 2, N. C.
Farmer.		

† Deceased.

Name.	*Degree.*	*Address.*
CICERO FRED GORE,	B.E. 1913,	Weldon, N. C.
Assistant to Superintendent and Engineer Highways, Halifax County.		
ALBERT SIDNEY JOHNSTON GOSS,	B.E. 1909,	Wilson, N. C.
Brett Engineering and Contracting Company.		
JOHN DAVID GRADY,	B.Agr. 1908,	Seven Sprgs., R.1. N. C.
Farmer.		
ROBERT WALTER GRAEBER,	B.S. 1911,	Charlotte, N. C.
County Agent Farmers' Coöperative Demonstration Work.		
WILLIAM HAYWOOD GRAHAM, JR.,	B.E. 1912,	Macon, Ga.
District Traffic Chief, Southern Bell Telephone and Telegraph Co.		
ROBERT STRICKLER GRAVES,	B.E. 1907,	Cincinnati, Ohio.
District Meter Specialist, General Electric Co.		
CHARLIE POOL GRAY,	B.E. 1909,	Avon, N. C.
Principal Avon School.		
GEORGE PENDER GRAY,*	B.S. 1893,	Tarboro, N. C.
Commercial Traveler, Read Phosphate Co. of Nashville, Tenn.		
JAMES MILLER GRAY,	B.S. 1910,	Durham, N. C.
Superintendent of Farm Life Schools.		
STERLING GRAYDON,	B.E. 1905,	Charlotte, N. C.
Superintendent Atherton Mills.		
ANDREW HARTSFIELD GREEN, JR.,	B.S. 1909,	Raleigh, N. C.
Commercial National Bank.		
MARION JACKSON GREEN,	B.S. 1896,	Charlotte, N. C.
Pattern maker, The Cole Manufacturing Co.		
ARTHUR WYNNS GREGORY,*	B.S. 1906,	Shanghai, China.
Sales Manager, Tien Tsin Office, British-American Tobacco Co.		
PAUL STIREWALT GRIERSON,	B.E. 1904,	Newport News, Va.
Draftsman, Charles Cory & Son, New York.		
JOSEPH PERRIN GULLEY, JR.,*	B.E. 1904,	Raleigh, N. C.
Traveling Salesman, Federal Gas Fixture Works of Philadelphia.		
EMIL GUNTER,*	B.E. 1903,	Boston, Mass.
Engineering Department, Edison Electric Illuminating Co.		
WINSTON PAYNE GWATHMEY,	B.E. 1913,	Richmond, Va.
City Draftsman.		
DORSEY YATES HAGAN,	B.E. 1908,	Greensboro, N. C.
Surveyor.		
FELIX STANTON HALES,	B.E. 1913,	West Raleigh, N. C.
Instructor Mathematics, N. C. College of Agriculture and Mechanic Arts.		
CHARLES GANZER HALL,	B.E. 1913,	New Bedford, Mass.
Resident Engineer for H. C. Raynes, Inc., Consulting Engineers, of Boston, Mass.		
HORACE LESTER HAMILTON,	B.E. 1906,	Baltimore, Md.
Advertising Manager Electric Division Gas and Electric Co.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
WILLIAM ROY HAMPTON,	B.S. 1909,	Plymouth, N. C.
Owner firm of W. H. Hampton & Son, Inc., Merchants and Bankers.		
LEROY CORBETT HAND,	B.E. 1913,	Henderson, N. C.
Assistant Weaving Department, Henderson Cotton Mills.		
SAMUEL MERRILL HANFF,	B.S. 1900,	Wadesboro, N. C.
Episcopal Clergyman.		
JOHN FREDERICK HANSELMAN,	B.E. 1906,	Richmond, Va.
Mayo Land and Bridge Co.		
GEORGE ROM. HARDESTY,	B.E. 1907,	Goldsboro, N. C.
Chief Engineer, State Hospital.		
PHILIP WILLIAM HARDIE,	B.E. 1907,	Greensboro, N. C.
Surveyor.		
JARVIS BENJAMIN HARDING,	B.E. 1904,	Greenville, N. C.
C.E. 1909.		
ROBERT MCKENZIE HARDISON,	B.E. 1912,	New York, N. Y.
Student, Columbia University.		
NATHAN DAVID HARGROVE,	B.S. 1912,	Richmond, Va.
Manager A. W. Hargrove, Paints and Wall Papers.		
RICHARD HUGH HARPER,	B.S. 1905,	Patterson, N. C.
With Gwyn-Harper Manufacturing Co.		
GEORGE ROLAND HARRELL,	B.S. 1900,	Grasselli, N. J.
The Grasselli Chemical Co.		
JOHN WILLIAM HARRELSON,	B.E. 1909,	West Raleigh, N. C.
Instructor, N. C. College of Agriculture and Mechanic Arts.		
CEBERN DODD HARRIS,	B.S. 1897,	Anchorage, Ky.
Manager Burley Tobacco Manufacturing Co., of Louisville, Ky.		
GORDON HARRIS,	B.E. 1909,	Schenectady, N. Y.
Lighting Engineering Department, General Electric Co.		
THOMAS DEVIN HARRIS,	B.E. 1911,	Raleigh, N. C.
Engineer and Surveyor, State Department of Agriculture. Home Address, Oxford, N. C.		
WILLIAM HENRY HARRIS,	B.E. 1895,	Pawtucket, R. I.
M.E. 1896. Treasurer and Agent, Slater Manufacturing Co.		
THOMAS ROY HART,	B.S. 1913,	Burlington, N. C.
Section Manager, Spinning Room, Aurora Mill.		
HARRY HARTSELL,	B.E. 1912,	Indianapolis, Ind.
Telephone Specialist, Western Electric Co.		
FRANK HAWKS,	B.E. 1910,	Wilmington, N. C.
Draftsman, Atlantic Coast Line R. R.		
EDMUND BURKE HAYWOOD,	B.E. 1910,	Raleigh, N. C.
Assistant to Commissioner of Public Works and City Engineer.		
THOMAS FREDERICK HAYWOOD,†	B.E. 1909,	Trenton, N. C.

† Deceased.

Name.	*Degree.*	*Address.*
JOKTAN LAFAYETTE HEMPHILL,	B.E. 1907,	Schenectady, N. Y.
Engineer, General Electric Co.		
LEONARD HENDERSON,	B.E. 1909,	Whitney, N. C.
With Pierson & Goodrich.		
MAURICE HENDRICK,	B.E. 1908,	Cliffside, N. C.
Overseer Spinning, Cliffside Mills.		
LAWRENCE JAMES HERRING,	B.Agr. 1907,	Wilson, N. C.
Practicing Veterinary Medicine. D.V.S., Kansas City Veterinary College.		
JERE. ISAAC HERRITAGE,	B.E. 1905,	Jacksonville, N. C.
Civil Engineer, John L. Roper Lumber Co.		
THOMAS JASPER HEWITT,	B.E. 1913,	New Bern, N. C.
With U. S. Engineering Department.		
CLARENCE WILSON HEWLETT,	B.E. 1906,	Washington, D. C.
M.A., Ph.D., Johns Hopkins. Assistant Physicist, Department of Research in Terrestrial Magnetism, Carnegie Institution of Washington.		
RUFUS WILLIAMS HICKS, JR.,	B.E. 1910,	New York, N. Y.
Heating and Ventilating Engineer, No. 1 Broadway.		
BASCOMBE BRITT HIGGINS,	B.S. 1909,	Experiment, Ga.
M.S., 1910; Ph.D. 1913, Cornell University. Botanist, Georgia Agricultural Experiment Station.		
LYDA ALEXANDER HIGGINS,	B.S. 1910,	Brookhaven, Miss.
Agent in Dairying, Dairy Division, U. S. Department of Agriculture.		
RILEY WEAVER HIGGINS,	B.S. 1913,	Rutherfordton, N. C.
Farming for Drs. Morris & Biggs.		
JAMES ALLAN HIGGS, JR.,	B.E. 1906,	Knoxville, Tenn.
C.E. 1910. Assistant Engineer, Southern Railway.		
JERE. EUSTIS HIGHSMITH,	B.S. 1897,	Parkersburg, N. C.
Farmer.		
DANIEL HARVEY HILL, JR.,	B.S. 1909,	Charlotte, N. C.
Associate Editor, Southern Textile Bulletin.		
DAVID RAYMOND HINKLE,	B.E. 1911,	Milstead, Ga.
Overseer Spinning, Milstead Mills.		
GUY FRANCIS HINSHAW,	B.E. 1907,	Winston-Salem, N. C.
City Engineer of Winston.		
GEORGE HERBERT HODGES,	B.E. 1904,	Fairchance, Pa.
Superintendent Kyle Mine, H. C. Frick Coke Co.		
LABAN MILES HOFFMAN, JR.,	B.E. 1905,	Dallas, N. C.
WILLIS ASKEW HOLDING,	B.S. 1912,	Mount Pleasant, Tenn.
Chemist, Parker Chemical Co.		
CHARLES BOLLING HOLLADAY,	B.E. 1893,	Wilmington, Del.
E. I. du Pont de Nemours Powder Co.		
PETER ARMSTRONG HOLT,	B.S. 1913,	Graham, N. C.
Office Clerk, L. Banks Holt Manufacturing Co.		

Name.	*Degree.*	*Address.*
WILLIAM NORMAN HOLT,	B.E. 1907,	Norfolk, Va.
Traveling Salesman, The Texas Co.		
BENJAMIN OLIVER HOOD,	B.E. 1901,	New York, N. Y.
Structural Engineer, F. A. Burdett & Co., Consulting Engineers.		
LOUIE LEE HOOD,	B.E. 1910,	Greensboro, N. C.
With Greensboro Music Co.		
WALTER CLEARY HOPKINS,	B.E. 1913,	Ocala, Fla.
District Engineer's Office, A. C. L. R. R., Valuation Survey.		
WAYNE ARINGTON HORNADAY,	B.S. 1909,	Burlington, N. C.
M.S. 1910; D.V. M., Kansas City Veterinary College. Veterinarian.		
JOHN HOWARD,	B.S. 1896,	Middlesboro, Ky.
Attorney at Law.		
JESSE MCRAE HOWARD,	B.E. 1904,	Concord, N. C.
Overseer Dyeing, Gibson Manufacturing Co.		
ROBERT IRVING HOWARD,	B.E. 1904 (Tex.),	Conetoe, N. C.
Civil Engineer.		
SAMUEL BENJAMIN HOWARD,	B.E. 1913,	Raleigh, N. C.
Surveyor, with John B. Bray, Civil Engineer.		
RALPH WILKINSON HOWELL,	B.S. 1912,	Belhaven, N. C.
Manager Belhaven Ice and Light Plant.		
BRANTON FAISON HUGGINS,	B.E. 1904,	Macon, Ga.
Salesman, Gresham Manufacturing Co., of Griffin, Ga.		
HENRY ALLEN HUGGINS,	B.S. 1900,	Wilmington, N. C.
Bookkeeper, George W. Huggins, Jeweler.		
CHRISTOPHER MILLER HUGHES,	B.E. 1895,	Richmond, Va.
B.S. 1899. Wholesale Lumber Dealer.		
LLOYD RAINEY HUNT,	B.E. 1905,	Lexington, N. C.
Superintendent Lexington Light and Water Department.		
HILL MCIVER HUNTER,	B.E. 1904,	Greensboro, N. C.
Purchasing Agent White Oak Mills, Proximity Print Works, Proximity Mills.		
MALCOLM BEALL HUNTER,	B.E. 1895,	Charlotte, N. C.
President Acme Plumbing and Heating Co.		
JOHN WILLIAM IVEY,*	B.E. 1909,	Dublin, Ga.
Central of Georgia Railway Co.		
WILLIAM COLBERT JACKSON,	B.S. 1896,	Wake Forest, N. C.
Farmer.		
ERNEST JUDSON JEFFRESS,	B.E. 1913,	Raleigh, N. C.
Carolina Light and Power Co.		
DOUGLAS CREELMAN JEFFREY,	B.E. 1913,	Buffalo, N. Y.
Topographer, Canadian Pacific Railway.		
EUGENE COLISTUS JOHNSON,	B.E. 1903,	Ingold, N. C.
Sawmilling and Farming.		

*Not heard from this year.

Name.	*Degree.*	*Address.*
JAMES WRIGHT JOHNSON,	B.E. 1913,	Lynn, Mass.
Engineering Student, General Electric Co.		
W. F. R. JOHNSON,	B.E. 1909,	Dillon, S. C.
Firm of Johnson & Johnson, Civil Engineers.		
ALBERT CARL JONES,	B.Agr. 1907,	High Point, N. C.
D.V.S., Kansas City Veterinary College. Veterinarian, Meat and Milk Inspector.		
FREDERICK JOHN JONES,	B.E. 1909,	Louisville, Ky.
Assistant Engineer, Construction Department, Louisville and Nashville R. R. Home Address, New Bern, N. C.		
GARLAND JONES, JR.,	B.S. 1900,	Raleigh, N. C.
Oil Chemist, State Department of Agriculture.		
ROBERT FRANK JONES,	B.E. 1910,	Wade, N. C.
Assistant Resident Engineer, Atlantic Coast Line R. R.		
WILLIAM WHITMORE JONES,	B.E. 1907,	Franklin, N. C.
Manager Franklin Telephone and Electric Co.		
CLYDE RAYMOND JORDAN,	B.E. 1910,	Currie, N. C.
Owner and Operator of Lumber Plant.		
HARVEY LANGILL JOSLYN,	B.S. 1913,	Vanceboro, N. C.
Instructor in Agriculture, Craven County Farm Life School.		
JOHN GORDON KELLOGG,	B.S. 1912,	Brown Summit, N. C.
Teacher of Agriculture and Science, Monticello High School.		
MARTIN KELLOGG,	B.Agr. 1901,	Sunbury, N. C.
Farmer.		
CLYDE BENNETT KENDALL,	B.S. 1897,	Washington, D. C.
Topographer, U. S. Geological Survey.		
ALPHEUS ROUNTREE KENNEDY,	B.S. 1898,	Quincy, Mass.
Ship Draftsman, Fore River Shipbuilding Co.		
JAMES MATTHEW KENNEDY,	B.E. 1903,	Raleigh, N. C.
Architect.		
SYDNEY G. KENNEDY,	B.S. 1897,	Sanford, Fla.
Shop Foreman, Atlantic Coast Line R. R.		
ARTHUR TEMPLETON KENYON,*	B.E. 1905,	Bradley Beach, N. J.
WILLIAM KERR,	B.S. 1904,	Hayden, N. M.
M.S. 1912, V. P. I. Farmer.		
GEORGE EDISON KIDD,	B.E. 1913,	Schenectady, N. Y.
General Electric Co. Home Address, Paw Creek, N. C.		
LUTHER HILL KIRBY,	B.E. 1910,	Manila, P. I.
Civil Engineer, Bureau of Lands.		
SAM JONES KIRBY,	B.S. 1912,	Washington, N. C.
Professor of Agriculture and Science, Washington Collegiate Institute. Home Address, Selma, N. C.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
WILLIAM FRANKLIN KIRKPATRICK,	B.E. 1904,	Storrs, Conn.
B.Agr., 1905. Professor of Poultry Husbandry, Conn. Agricultural College.		
JOSEPH LAWRENCE KNIGHT,*	B.S. 1897,	Dewey, Fla.
Pas Manufacturing Co., Naval Stores.		
LOUIS BRASWELL KNIGHT,	B.S. 1913,	Tarboro, N. C.
Farmer.		
STARR NEELY KNOX,	B.E. 1905,	Charlotte, N. C.
Assistant Engineer, Southern Railway Co.		
WILLIAM GRAHAM KNOX,	B.S. 1906,	New York, N. Y.
Assistant Research and Development Laboratory, Western Electric Co.		
JAMES HERRITAGE KOONCE,†	B.E. 1905,	Richlands, N. C.
LAFAYETTE FRANCK KOONCE,	B.Agr. 1907,	Raleigh, N. C.
D.V.M. 1909, Kansas City Veterinary College. Veterinary Surgeon.		
HERBERT WILLIAM KUEFFNER,	B.E. 1908,	Perry, Iowa.
Resident Engineer, Chicago, Milwaukee and St. Paul R. R.		
FREDERICK CREECY LAMB,	B.S. 1898,	El Paso, Tex.
Health Office (Chemist).		
CLAUDE MILTON LAMBE,	B.E. 1908,	Raleigh, N. C.
Civil Engineer, Construction Department, Carolina Power and Light Co.		
CARL JOSHUA LAMBETH,	B.E. 1912,	Manila, P. I.
Lieutenant, Philippine Constabulary.		
BENNETT LAND, JR.,	B.E. 1903,	Tampa, Fla.
Division Engineer, Seaboard Air Line Railway.		
JOHN THOMAS LAND,	B.E. 1903,	Jacksonville, Fla.
Chief Engineer, Carpenter-O'Brien Co.		
MARK CLINTON LASITTER,	B.E. 1910,	Snow Hill, N. C.
Civil Engineer, with Southern Drainage and Construction Co.		
JAMES EDWARD LATHAM,	B.S. 1909,	Manila, P. I.
Agricultural Instructor, Bureau of Agriculture, San Fernando, Pamp.		
CHARLES EDWARD LATTA,*	B.E. 1908,	Raleigh, N. C.
CURTIS WILLIAMS LEE,	B.E. 1912,	Monroe, N. C.
General Manager, Monroe Manufacturing Co.		
EUGENE TALMAGE LEE,	B.E. 1910,	Dunn, N. C.
MORRIS LIFEROCK,	B.E. 1913,	Cove Creek, N. C.
Inspector, U. S. Engineering Service.		
JESSE JULIAN LILES,	B.E. 1901,	Pittsburgh, Pa.
Salesman, Power and Mining Department, General Electric Co.		
HENRY MARVIN LILLY,	B.E. 1905,	Raeford, N. C.
Civil Engineer.		

† Deceased.
* Not heard from this year.

Name.	*Degree.*	*Address.*
ERNEST ERWIN LINCOLN,	B.E. 1904,	Phœnixville, Pa.
Draftsman, The Phœnix Bridge Co.		
DAVID LINDSAY,	B.E. 1908,	Draper, N. C.
Assistant Superintendent German-American Co.		
JOHN HENRY LITTLE,	B.E. 1908,	Philadelphia, Pa.
Salesman, General Electric Co.		
ULPHIAN CARR LOFTIN,	B.S. 1910,	Audubon Park, New Orleans, La.
Bureau of Entomology, U. S. Department of Agriculture.		
RALPH LONG,	B.S. 1909,	Greensboro, N. C.
Salesman, Liggett & Myers Tobacco Co.		
LOUIS EDGAR LOUGEE,*	B.S. 1907,	Pittsburgh, Pa.
Jones & Laughlin Steel Co.		
LEWIS OMER LOUGEE,	B.E. 1901,	Pittsburgh, Pa.
Civil and Mining Engineer. Member firm George S. Baton & Co.		
THOMAS PINKNEY LOVELACE,	B.E. 1912,	Charlotte, N. C.
Foreman, Department of Maintenance, Southern Power Co.		
JOE POINDEXTER LOVILL,.	B.E. 1906,	Mount Airy, N. C.
GEORGE LAFAYETTE LYERLY,	B.E. 1908,	Hickory, N. C.
Manager and Partner, Shuford Hardware Co.		
LIPSCOMBE GOODWIN LYKES,	B.E. 1905,	Havana, Cuba, Tampa, Fla., Galveston, Tex.
Vice-President Lykes Brothers, Inc.		
THOMPSON MAYO LYKES,	B.E. 1906,	Tampa, Fla.
Secretary and Treasurer The Lykes Co. Secretary Tampa Packing Co.		
GEORGE GREEN LYNCH, JR.,	B.E. 1905,	Wilmington, N. C.
Draftsman, Atlantic Coast Line R. R.		
ALBERT SYDNEY LYON,	B.S. 1899,	Rocky Mount, N. C.
Superintendent Rocky Mount Public Works.		
EDMOND SHAW LYTCH,	B.E. 1903,	Laurinburg, N. C.
Partner, Laurinburg Machine Co.		
WILLIAM MCNEIL LYTCH,	B.E. 1893,	Laurinburg, N. C.
Partner, Laurinburg Machine Co.		
FRANK WHITESIDE MCCOMB,	B.E. 1913,	Hickory, N. C.
Dairyman.		
HENRY KREIGER MCCONNELL,	B.S. 1907,	Louisville, Ky.
Assistant Chemist, Kentucky Tobacco Products Co.		
EUGENE RICHARD MCCRACKEN,	B.E. 1911,	Graham, N. C.
FRANK NEELY MCDOWELL,	B.S. 1910,	West Raleigh, N. C.
Assistant in Soil Work, N. C. Experiment Station.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
JAMES EDWARD MCGEE,	B.E. 1912,	Rosemary, N. C.
With Rosemary Manufacturing Co.		
MALCOLM ROLAND MCGIRT,	B.Agr. 1905,	Winston-Salem, N. C., R. 1.
Dairying for P. H. Hanes.		
JOHN FAIRLY MCINTYRE,	B.E. 1904,	Laurinburg, N. C.
Farmer.		
WALTER HOGE MCINTYRE,	B.S. 1905,	Knoxville, Tenn.
Soil Chemist, Agricultural Experiment Station, University of Tennessee.		
SAMUEL CHRISTOPHER MCKEOWN,	B.E. 1895,	Sumter, S. C.
Chief Engineer, Sumter Electrical Co.		
CHARLES MCKIMMON, JR.,	B.S. 1911,	Ensley, Ala.
Chemist, Tennessee Coal and Iron Co.		
JAMES MCKIMMON,	B.E. 1904,	Raleigh, N. C.
McKimmon & Thomas, Real Estate and Insurance.		
JOHN LUTHER MCKINNOWN,	B.Agr. 1902,	Laurinburg, N. C.
Farmer.		
JAMES WILLIAM MCKOY,*	B.E. 1893,	Black Mountain, N.C.
Civil Engineer and Merchant.		
HORACE SMITH MCLENDON,	B.Agr. 1906,	Wadesboro, N. C.,R.1.
Farming.		
LENNOX POLK MCLENDON,	B.S. 1910,	Durham, N. C.
Lawyer.		
WALTER JONES MCLENDON, JR.,	B.S. 1897,	Knoxville, Tenn.
President Capitola Manufacturing Co. of Marshall, N. C., and President Prendergast Cotton Mills of Prendergast, Tenn.		
OSCAR FRANKLIN MCNAIRY,	B.E. 1907,	Portsmouth, Va.
Assistant Engineer, Seaboard Air Line Ry. Home Address, Greensboro, N. C.		
SAMUEL HUXLEY MCNEELY,	B.E. 1909,	Pittsburgh, Pa.
Commercial Engineer, Allis Chalmers Co.		
CHARLES HARDEN MCQUEEN,	B.E. 1901,	Boston, Mass.
Inspector Bitulithic Pavements, Warren Brothers Co.		
NEILL MCQUEEN,	B.E. 1912,	Atlanta, Ga.
Superintendent of Machinery, Exposition Cotton Mills.		
SAMUEL MACON MALLISON,	B.E. 1909,	Washington, N. C.
Hardware Business.		
CARROLL LAMB MANN,	B.S. 1899,	West Raleigh, N. C.
C.E. 1906. Civil Engineer and Professor of Railroad Engineering, N. C. College of Agriculture and Mechanic Arts.		
LOUIS HENRY MANN,	B.E. 1900,	Washington, N. C.
Dentist.		

*Not heard from this year.

Name.	*Degree.*	*Address.*
WALTER RAY MANN,	B.S. 1912,	Manila, P. I.
Lieutenant, Philippine Constabulary.		
WILLIAM LEAKE MANNING,	B.E. 1910,	Rosemary, N. C.
Rosemary Manufacturing Co.		
CLARENCE TALMAGE MARSH,	B.E. 1908,	Fort Adams, R. I.
First Lieutenant, Coast Artillery Corps, U. S. A.		
WILLIAM ROYDAN MARSHALL,	B.E. 1909,	New York, N. Y.
Salesman, Westinghouse Machine Co., of East Pittsburg, Pa.		
JACOB LEE MARTIN,	B.E. 1911,	Marathon, Fla.
Engineering Department, Florida East Coast Railway. Home Address, Graham, N. C.		
RALPH CECIL MASON,	B.S. 1909,	Harrellsville, N. C.
Farmer.		
ARTHUR BALLARD MASSEY,	B.S. 1909,	Auburn, Ala.
Pathologist, Alabama Polytechnic Institute.		
WALTER JEROME MATTHEWS,	B.E. 1893,	Goldsboro and Kinston, N. C.
Contractor and Builder.		
ROBERT SYLVANUS MAUNEY,	B.E. 1913,	Pittsfield, Mass.
Electrical Testing Department, General Electric Co.		
RAYMOND MAXWELL,	B.E. 1906,	Seven Springs, N. C.
Owner and Proprietor Seven Springs Hotel.		
MELVIN SOLOMON MAYES,	B.E. 1910,	Stem, N. C.
Stem Mercantile Co.		
FRANK THEOPHILUS MEACHAM,	B.S. 1893,	Statesville, N. C.
M.S. 1894. Superintendent Experiment Station, U. S. Department of Agriculture.		
EUGENE FRANKLIN MEADOR,	B.E. 1907,	Danville, Va.
With Virginia City Motor Co.		
ROBERT TOLAR MELVIN,	B.S. 1913,	White Oak, N. C.
Farmer.		
HENRY BASCOM MERCER,	B.E. 1912,	Portsmouth, Va.
Assistant Right of Way Engineer, Seaboard Air Line Railway.		
LEWIS LARKINS MERRITT,	B.E. 1913,	Wilmington, N. C.
Surveyor, U. S. Engineer Department.		
REPTON HALL MERRITT,	B.S. 1897,	Raleigh, N. C.
Secretary-Treasurer Powell & Powell, Inc., Coal, Ice, and Wood.		
ROBERT GRAHAM MEWBORNE,	B.S. 1896,	Louisville, Ky.
Chemist, Kentucky Tobacco Product Co.		
BENNETT TAYLOR MIAL,	B.E. 1907,	Philadelphia, Pa.
Manager of Erection, Belmont Iron Works.		
THOMAS KENNETH MIAL,	B.E. 1913,	Wilkinsburg, Pa.
Westinghouse Electric and Manufacturing Co., of Pittsburg, Pa.		

Name.	*Degree.*	*Address.*
FRANK CURTIS MICHAEL,	B.E. 1907,	Charlotte, N. C.
Electrical Engineering and Construction.		
DAVID JOHN MIDDLETON,	B.Agr. 1908,	Warsaw, N. C.
Farmer.		
JOSEPH ALFRED MILLER, JR.,	B.E. 1904,	Brevard, N. C.
Manager Miller Supply Co.		
WALKER MOREHEAD MILLNER,*	B.E. 1909,	Spray, N. C.
Assistant Superintendent, Rhode Island Mills Co.		
JOHN MAPLE MILLS,	B.E. 1907,	Raleigh, N. C.
Half Partner and Manager Bland Hotel Cafe.		
SIMON TURNER MITCHINER,	B.E. 1912,	Milwaukee, Wis.
International Harvester Co.		
BENJAMIN FRANKLIN MONTAGUE,	B.E. 1909,	Johnson City, Tenn.
Draftsman, Carolina, Clinchfield and Ohio Railway.		
HENRY STARBUCK MONTAGUE,	B.S. 1907,	Agr'l College, Miss.
Assistant Chemist, Mississippi State Laboratory.		
LEON DAVIS MOODY,*	B.E. 1910,	Charleston, S. C.
Chief Engineer, Interstate Chemical Corporation.		
EUGENE BOISE MOORE,	B.E. 1910,	Toledo, Ohio.
Manager Toledo Sales Office, Allis Chalmers Manufacturing Co.		
LACY MOORE,	B.E. 1906,	Washington, D. C.
Assistant Engineer, Southern Railway.		
JAMES OSCAR MORGAN,	B.Agr. 1905,	College Station, Tex.
M.S.A. 1907, Ph. D. 1909, Cornell University. Professor of Agronomy, Texas A. and M. College.		
ROBERT LEE MORGAN,†	B.E. 1910,	Silver City, N. M.
JESSE JOHN MORRIS,	B.E. 1903,	Weeksville, N. C.
Farmer and County Surveyor.		
WILLIAM FLAUD MORRIS,	B.E. 1909,	Lillington, N. C.
Assistant Superintendent Lillington Oil Mill Co.		
JOSEPH GRAHAM MORRISON,	B.Agr. 1906,	Stanley, N. C.
Farmer.		
ROBERT HALL MORRISON,	B.E. 1900,	Salisbury, N. C.
President Machinery Supply Co.		
ROBERT LEE MORRISON,	B.E. 1911,	Brigham City, Utah.
Civil Engineer, Phœnix Construction Co.		
JOHN LIGHTFOOT MORSON,	B.E. 1907,	Jacksonville, Fla.
Civil Engineer, Seaboard Air Line Railway.		
WILLIAM FIELD MORSON,	B.E. 1904,	Star, N. C.
Resident Engineer, Raleigh, Charlotte and Southern Railway Co.		

† Deceased.
* Not heard from this year.

Name.	*Degree.*	*Address.*
LAURIE MOSELEY,	B.E. 1902,	Greensboro, N. C.,
Thompson & Moseley, Inc., Contractors.		
VASSAR YOUNG MOSS,*	B.E. 1902,	Canonsburg, Pa.
Draftsman, Fort Pitt Bridge Works.		
HARRY YOEMANS MOTT,	B.S. 1910,	Mooresville, N. C.
Farmer.		
JAMES RICHARD MULLEN,	B.S. 1912,	Raleigh, N. C.
Assistant Chemist, N. C. Department of Agriculture.		
LINDSLEY ALEXANDER MURR,	B.E. 1905,	Portsmouth, Va.
Assistant Engineer, Seaboard Air Line Railway.		
GARLAND PERRY MYATT,	B.S. 1905,	Brooklyn, N. Y.
Works Chemist, Chas. Pfizer & Co.		
O'KELLY W. MYERS,	B.S. 1899,	Brooklyn, N. Y.
Assistant Engineer, Board of Water Supply, City of New York.		
JESSE CLARENCE MYRICK,	B.E. 1906,	Balboa, C. Z.
Electrical Foreman, Isthmian Canal Commission.		
LEON ANDREWS NEAL,	B.E. 1904,	Roanoke, Va.
Resident Engineer, Virginia Iron, Coal and Coke Co.		
WILLIAM MCCORMICK NEALE,	B.E. 1910,	Greenville, S. C.
Chief Draftsman, American Machine and Manufacturing Co.		
CHARLES MCKEE NEWCOMB,	B.E. 1912,	Erlanger, Ky.
Draftsman, Cincinnati, New Orleans and Texas Pacific Railway.		
CHARLES ARTHUR NICHOLS,	B.E. 1902,	Muskogee, Okla.
Manager Third Street Grocery Co.		
CHARLES FRANKLIN NIVEN,	B.Agr. 1906,	Clemson College, S. C
Assistant Professor of Horticulture, Clemson College.		
LOLA ALEXANDER NIVEN,	B.Agr. 1906,	Atlanta, Ga.
Editor Orange Judd Southern Farming.		
WILLIAM TIMOTHY NIXON,	B.S. 1913,	Durham, N. C., R. 3.
Assistant Director County Farm Life School.		
LEWIS MILTON ODEN,	B.Agr. 1906,	Raleigh, N. C.
THOMAS JEFFERSON OGBURN, JR.,	B.E. 1906,	Richmond, Va.
Everett-Waddey Co.		
ALBERT HICKS OLIVER,	B.S. 1897,	Mount Olive, N. C.
Farmer.		
SAMUEL LOFTIN OLIVER,	B.E. 1909,	Mount Olive, N. C.
Electrical Contractor and Engineer.		
JAMES ELWOOD OVERTON,	B.Agr. 1907,	Ahoskie, N. C.
Traveling Grader, Inspector and Peanut Buyer for American Peanut Corporation.		
DAVID STARR OWEN,	B.E. 1903,	Savannah, Ga.
General Superintendent Atlantic Turpentine and Refining Co.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
EDWIN BENTLEY OWEN,	B.S. 1898,	West Raleigh, N. C.
Registrar, N. C. College of Agriculture and Mechanic Arts.		
CHARLES WASHINGTON OWENS,	B.E. 1912,	Savannah, Ga.
Office Engineer of Roadway, Atlantic Coast Line Railroad. Home Address, Walstonburg, N. C., R. 1.		
JOHN ALSEY PARK,	B.E. 1905,	Raleigh, N. C.
Publisher The Raleigh Times.		
B. MOORE PARKER	B.S. 1898,	West Raleigh, N. C.
Assistant Professor Textile Industry, N. C. College of Agriculture and Mechanic Arts.		
CLYDE ESTER PARKER,	B.S. 1906,	Raleigh, N. C.
Firm of Parker Bros. & Co., Cotton Brokers and Merchants.		
EUGENE LEROY PARKER,	B.S. 1899,	Mt. Pleasant, Tenn.
Chemist and Manager, E. L. Parker & Co.		
JOHN HARVEY PARKER,	B.E. 1903,	New Bern, N. C.
Burrus & Parker, Inc.		
JAMES LAFAYETTE PARKER,	B.E. 1902,	New York, N. Y.
Assistant Engineer, Herbert C. Keith, Consulting Engineer.		
JULIUS MONROE PARKER,	B.E. 1909,	Nashville, Tenn.
Civil Engineer, Louisville and Nashville Railway Co.		
THOMAS FRANKLIN PARKER,	B.Agr. 1907,	Rio Piedras, Porto Rico.
M.S. 1908. General Supervisor of Agricultural Education of Porto Rico.		
WALTER HERBERT PARKER,	B.E. 1913,	Wilkinsburg, Pa.
Technical Apprentice, Westinghouse Machine Co.		
FRED MAYNARD PARKS,	B.E. 1907,	Wilkinsburg, Pa.
Electrician, Westinghouse Electric and Manufacturing Co.		
THADDEUS ROWLAND PARRISH,	B.E. 1913,	Berkeley, Cal.
Jno. W. Mackay, Jr., Fellow in Electrical Engineering, Univ. of California.		
JOHN GILBERT PASCHAL,	B.E. 1909,	Lillington, N. C.
Lumber Manufacturer.		
ARTHUR LEE PASCHALL,	B.Agr. 1907,	San Simon, Ariz.
Farmer.		
WILLIAM FRANKLIN PATE,	B.S. 1901,	Raleigh, N. C.
M.S. 1913. Soil Test, Division of Agronomy, N. C. Dept. of Agriculture.		
MANN CABE PATTERSON,	B.E. 1895,	Durham, N. C.
ROBERT DONNELL PATTERSON,	B.S. 1894,	Chase City, Va.
M.S. 1898. President The First State Bank.		
WILLIAM JOEL PATTON,	B.E. 1904,	Dallas, Texas.
Electrician.		
CHARLES PEARSON,	B.E. 1894,	Lagrange, Ga.
Member of firm, General Engineering Construction Co., General Contractors.		

Name.	*Degree.*	*Address.*
FRED. TAYLOR PEDEN,	B.S. 1911,	Springdale, N. C.
Agent in Animal Husbandry, United States and North Carolina Departments of Agriculture.		
JOHN TAYLOR PEDEN, JR.,	B.E. 1911,	Pittsburgh, Pa.
Sales Department, Westinghouse Electric and Manufacturing Co.		
JAMES HICKS PEIRCE,	B.S. 1905,	Warsaw, N. C.
J. H. Peirce Manufacturing Co., Sash, Doors and Blinds.		
WILLIAM CASPER PENNINGTON,	B.E. 1910,	Thomasville, N. C.
The Amazon Cotton Mills.		
SAMUEL OSCAR PERKINS,	B.S. 1906,	Raleigh, N. C.
Soil Scientist, N. C. Department of Agriculture.		
EUGENE GRAY PERSON,	B.S. 1899,	Macon, Ga.
Train Dispatcher, Central of Georgia Railway.		
WILLIAM MONTGOMERY PERSON,	B.E. 1900,	Fairfield, Birm'h'm, Alabama.
Semet-Solvay By-product Coke Plant, of Ensley, Ala.		
FREDERICK COLWELL PHELPS,	B.E. 1904,	San Francisco, Cal.
Second Lieutenant, 12th U. S. Infantry.		
WILLIAM RANSOME PHILLIPS,	B.E. 1910,	Raleigh, N. C.
E.E. 1913. Engineering Department, Carolina Power and Light Co.		
ALEXANDER HOLLADAY PICKELL,	B.E. 1912,	Raleigh, N. C.
With Carolina Power and Light Co.		
PETER PENICK PIERCE,	B.E. 1909,	Marathon, Fla.
Resident Engineer, Construction Department, Florida East Coast Ry.		
GUY PINNER,	B.E. 1907,	New York, N. Y.
C.E. 1912. Assistant Engineer, with H. C. Keith, Consulting Engineer.		
WINSLOW GERALD PITMAN,	B.E. 1907,	Lumberton, N. C.
Superintendent City Water and Light Department.		
PAUL NATHANIEL PITTENGER,	B.E. 1911,	Goldsboro, N. C.
Carolina Power and Light Company.		
BENJAMIN FRANKLIN PITTMAN,	B.E. 1908,	Pee Dee, N. C.
Operating Power Plant, Yadkin River Power Co.		
LAWRENCE LYON PITTMAN,	B.E. 1908,	Whitakers, N. C.
Civil Engineer and Farmer.		
PAUL MILLER PITTS,	B.E. 1909,	Lockhart, Ala.
Machinist, Jackson Lumber Co.		
ANGELO BETTLENA PIVER,	B.E. 1906,	Phœnixville, Pa.
Structural Draftsman, Phœnix Bridge Co.		
WILLIAM CRAWFORD PIVER,	B.S. 1906,	New York, N. Y.
Riehes, Piver & Co., Chemical and Color Manufacturers, Hoboken, N. J.		
JAMES KEMP PLUMMER,	B.S. 1907,	Raleigh, N. C.
M.S. 1909. M.A. 1911, Cornell University. Soil Chemist, State Department of Agriculture.		

Name.	*Degree.*	*Address.*
PLEASANT H. POINDEXTER, JR.,	B.Agr. 1905,	Sharon, Okla.
Manager, C. E. Sharp Lumber Co.		
RUBLE ISAAC POOLE,	B.E. 1908,	West Raleigh, N. C.
Instructor, N. C. College of Agriculture and Mechanic Arts.		
EDWARD GRIFFITH PORTER,	B.E. 1905,	Paraiso, C. Z.
Junior Engineer, Dredging Division, Isthmian Canal Commission.		
JUNIUS EDWARD PORTER,*	B.E. 1900,	Weldon, N. C.
General Manager and Treasurer, J. E. Porter & Co., Railroad Contractors.		
BRYANT MONROE POTTER,	B.E. 1912,	New Bern, N. C.
Civil Engineer.		
HARRY ALEXANDER POWELL,	B.E. 1908,	Fernandina, Fla.
Naval Stores Operator.		
JAMES ALEXANDER POWELL,	B.E. 1908,	East Wilkinsburgh, Pa.
M.E. 1913. Assistant Engineer, Condenser Department, Westinghouse Machine Co.		
JOEL POWERS,	B.E. 1903,	Goldsboro, N. C.
Draftsman, Dewey Brothers.		
THOMAS MILTON POYNER	B.E. 1908,	Hamlet, N. C.
W. R. Bonsal & Co.		
JAMES BRUCE PRICE,	B.E. 1910,	Cincinnati, Ohio.
Erecting Engineer, Westinghouse Electric and Manufacturing Co.		
JOHN MOIR PRICE,	B.E. 1909,	Bethlehem, Pa.
Salesman of Special Steels, Bethlehem Steel Co.		
HUGH WILLIAMS PRIMROSE,†	B.S. 1897,	Raleigh, N. C.
M.S. 1900.		
ABRAM HINMAN PRINCE,	B.S. 1895,	Orange, Tex.
Agent U. S. Department of Agriculture.		
CHARLES MARCELLUS PRICHETT,	M.E. 1895,	Charlotte, N. C.
C.E. 1896. Osborne & Pritchett, Civil Engineers.		
VICTOR VASHTI PRIVOTT,	B.E. 1895,	Suffolk, Va.
Merchant.		
THOMAS HECTOR PURCELL,	B.E. 1913,	Hope Mills, N. C.
Assistant Bookkeeper, Hope Mills Manufacturing Co.		
HENRY AUBREY QUICKEL,	B.S. 1913,	Rockingham, N. C.
Assistant to Superintendent, Great Falls Manufacturing Co.		
JOSEPHUS PLUMMER QUINERLY,	B.S. 1911,	Grifton, N. C.
Farmer and Merchant.		
JOHN OLIN RANKIN, JR.,	B.S. 1913,	Hoffman, N. C.
Dairy Superintendent for Frederick T. Gates & Son.		
WILLIAM WALTER RANKIN,	B.E. 1904,	Chapel Hill, N. C.
Instructor in Mathematics, University of North Carolina.		

* Not heard from this year.
† Deceased.

Name.	*Degree.*	*Address.*
RISDEN PATTERSON REECE,	B.E. 1904,	Winston-Salem, N. C.
Mechanical Engineer.		
ROBERT RICHARD REINHARDT,	B.S. 1909,	Lincolnton, N. C.
D.V.M., Kansas City Veterinary College.		
WILLIAM BENEDICT REINHARDT,	B.E. 1902,	Dawson, Y. T., Canada.
Electrician, Dawson Electric Light and Power Co.		
ROGER FRANCIS RICHARDSON,	B.E. 1900,	Ensley, Ala.
Engineer, Semet-Solvay Co.		
WILLIAM RICHARDSON, JR.,	B.E. 1904,	Birmingham, Ala.
Assistant to Consulting Engineer, Coal Mining Department, Tennessee Coal, Iron and Railroad Co.		
EDWARD HAYS RICKS,	B.E. 1903,	Roanoke Rapids, N.C.
Cashier First National Bank.		
LOUIS NAPOLEON RIGGAN,	B.E. 1912,	Norfolk, Va.
Draftsman, Seaboard Air Line Railway.		
ALFRED PRATTE RIGGS,	B.E. 1909,	Key West, Fla.
Florida East Coast Railway.		
ARCHIE KNIGHT ROBERTSON,	B.S. 1912,	West Raleigh, N. C.
Assistant in Boys' Corn Club Work in North Carolina, U. S. Department of Agriculture.		
DURANT WAITE ROBERTSON,	B.E. 1906,	Washington, D. C.
Teller, District National Bank.		
JOSEPH HENRY ROBERTSON,	B.E. 1909,	Salisbury, N. C.
North Carolina Public Service Co.		
JAY FREDERICK ROBINSON,	B.E. 1910,	Hampton, Va.
Draftsman, Newport News Shipbuilding and Dry Dock Co.		
GASTON WILDER ROGERS,	B.E. (Elec.) 1903,	Birmingham, Ala.
B.E. (Civil) 1905. Physician and Surgeon.		
ZEBBIE GEORGE ROGERS,	B.E. 1894,	Washington, D. C.
Civil Engineer.		
JOHN WESLEY ROLLINSON,*	B.E. 1911,	Zephyrhills, Fla.
WILLIAM EDWIN ROSE,	B.E. 1900,	Washington, D. C.
Mechanical Engineer. Member Washington Society Engineers and The American Society of Marine Draftsmen.		
CHARLES BURDETTE ROSS,	B.E. 1903,	Charlotte, N. C.
Secretary and Treasurer Model Steam Laundry Co.		
FLOYD DE ROSS,	B.E. 1900,	Lawton, Okla.
Owner Lawton Coca-Cola Bottling Co.		
GRAEME ROSS,	B.E. 1911,	Pittsburg, Pa.
Sales Department, Westinghouse Electric and Manufacturing Co.		
GEORGE ROMULUS ROSS,	B.S. 1911,	Jackson Springs, N. C.
Manager Farm for Roger A. Derby.		
GARLAND THOMAS ROWLAND,	B.E. 1913,	Pittsfield, Mass.
General Electric Co. of Schenectady, N. Y.		

* Not heard from this year.

Name.	*Degree.*	*Address.*
CARL COLLINS SADLER,	B.E. 1910,	Whitney, N. C.
Civil Engineer, Southern Aluminum Co.		
JAMES OLIN SADLER,	B.E. 1909,	Bartow, Fla.
Resident Engineer, Seaboard Air Line Railway.		
WILLIS HUNTER SANDERS,	B.S. 1897,	Weldon, N. C.
Superintendent of Power, Roanoke River Development Co.		
JOHN HYER SAUNDERS,	B.E. 1894,	Kinston, N. C.
Locomotive Engineer, Atlantic Coast Line Railroad.		
IRA OBED SCHAUB,	B.S. 1900,	Springfield, Mo.
Superintendent Demonstration Work, Frisco Railway.		
LEON JACOB SCHWAB,	B.E. 1907,	Savannah, Ga.
Junior Engineer, U. S. Engineering Department.		
ROBERT WALTER SCOTT, JR.,	B.Agr. 1905,	Bolton, N. C.
Manager Bolton Farms.		
EARLE ALOYSIUS SEIDENSPINNER,*	B.S. 1910,	Manila, P. I.
Lieutenant, Philippine Constabulary.		
DAVID WALTER SEIFERT,	B.E. 1913,	Oxford, N. C.
Athletic Instructor, Horner Military School.		
CARL DEWITT SELLARS,	B.E. 1893,	Greensboro, N. C.
Sales Department, Cone Export and Commission Co.		
JOHN WILLIAM SEXTON,	B.E. 1910,	Portsmouth, Va.
Resident Engineer, Seaboard Air Line Railway.		
CHARLES EDGAR SEYMORE,†	B.S. 1893,	Raleigh, N. C.
JAMES MORGAN SHERMAN,	B.S. 1911,	Madison, Wis.
M.S., Univ. of Wisconsin, 1912. Instructor in Agricultural Bacteriology, University of Wisconsin. Home Address, McLean, Va.		
FLEMING BATES SHERWOOD,	B.S. 1912,	West Raleigh, N. C.
Instructor in Chemistry, N. C. College of Agriculture and Mechanic Arts.		
FRANCIS WEBBER SHERWOOD,	B.S. 1909,	Ithaca, N. Y.
M.S. 1911. Graduate Student and Assistant in Chemistry, Cornell University.		
ROBERT ARNOLD SHOPE,	B.E. 1909,	Manila, P. I.
Lieutenant, Philippine Constabulary, Insular Government.		
JOHN WADE SHORE,	B.S. 1900,	Boonville, N. C.
Cashier Commercial and Savings Bank.		
IRA SHORT,	B.E. 1911,	Wilkinsburg, Pa.
Engineer, Westinghouse Machine Co., of East Pittsburg, Pa.		
JOHN HOUSTON SHUFORD,	B.S. 1903,	Charlotte, N. C.
Technical Representative and Salesman, Berlin Aniline Works.		
JOHN OSCAR SHUFORD,	B.E. 1907,	Lincolnton, N. C.
Superintendent Electric Plant, Town of Lincolnton.		
WILLIAM TALMAGE SHULL,	B.E. 1912,	Beaufort, N. C.
Civil Engineering.		

* Not heard from this year.
† Deceased.

Name.	*Degree.*	*Address.*
ORIN MORROW SIGMON,	B.E. 1911,	Hickory, N. C.
Treasurer Piedmont Wagon and Manufacturing Co.		
GEORGE GRAY SIMPSON,	B.E. 1909,	Rockingham, N. C.
Assistant to Secretary and Treasurer Great Falls Manufacturing Co.		
WILLIAM DUDLEY SIMPSON,	B.E. 1913,	Raleigh, N. C.
Assistant Engineer, City of Raleigh.		
FREDERICK ERASTUS SLOAN,	B.S. 1899,	Dayton, Fla.
Field Supervisor, Our Home Life Insurance Co. of Jacksonville, Fla.		
ROBERT LEE SLOAN,	B.S. 1913,	Raleigh, N. C.
Assistant Director Farmers Institutes, North Carolina Department of Agriculture.		
WILLIAM NEVILLE SLOAN,	B.E. 1909,	Clayton, Ga.
Engineer of Surveys, U. S. Government Forest Service.		
ANDREW THOMAS SMITH,	B.S. 1899,	Bridgeton, N. J.
Mechanical Engineer, with Cumberland Glass Manufacturing Co.		
EDGAR ENGLISH SMITH,	B.E. 1908,	Seattle, Wash.
U. S. Coast and Geodetic Survey.		
EDWIN HARRISON SMITH	B.E. 1910,	Weldon, N. C.
Civil Engineer.		
EDWARD OSCAR SMITH,	B.E. 1901,	Newport News, Va.
Chief of Order Department, Newport News Shipbuilding and Dry Dock Co.		
FRANCIS CLARK SMITH,	B.E. 1913,	New Bern, N. C.
With R. R. Eagle.		
FRANK STEED SMITH,	B.E. 1913,	Jacksonville, Fla.
Supervisor District Traffic Department, Southern Bell Telephone and Telegraph Co.		
JAMES LAWRENCE SMITH, JR.,	B.E. 1908,	Portsmouth, Va.
Assistant Engineer, Seaboard Air Line Railway.		
JAMES MCCREE SMITH,	B.S. 1912,	State Road, N. C.
Fruit Grower.		
JONATHAN RHODES SMITH,	B.E. 1905,	New York, N. Y.
Chief Draftsman, The Jobson-Gifford Co.		
ORUS WILDER SMITH,	B.E. 1912,	Springfield, Ohio.
Road Engineer, Foos Gas Engine Co.		
WILLIAM TURNER SMITH,	B.E. 1900,	Duke, N. C., R. 1
Farmer.		
THOMAS JEHU SMITHWICK,	B.S. 1897,	Mount Airy, N. C.
Consulting and Erecting Engineer.		
RUSSELL ELSTNER SNOWDEN,	B.E. 1902,	New Bern, N. C.
Superintendent Public Roads and Highway Engineer, Craven County.		
CHARLIE AUGUSTINE SPEAS,	B.E. 1911,	Laurel, Miss.
New Orleans, Mobile and Chicago Railroad.		
EDWARD PINKNEY SPEER,	B.E. 1912,	Hillsboro, Tex.
Assistant Chief Meter Engineer, Texas Power and Light Co.		

Name.	*Degree.*	*Address.*
JOHN FRANCIS SPEIGHT,†	B.E. 1910,	Whitakers, N. C.
COLIN GEORGE SPENCER,	B.S. 1913,	Mebane, N. C.
Superintendent Murray Hill Farm.		
JOHN DAVIDSON SPINKS,	B.E. 1905,	East Arcadia, N. C.
C.E. 1913. Junior Engineer, U. S. Engineering Department.		
JESSE PAGE SPOON,	B.Agr. 1908,	Burlington, N. C.
M.S. 1909. Veterinarian. D.V.S., Kansas City Veterinary College.		
ST. JULIEN LACHICOTTE SPRINGS,	B.S. 1910,	Lake Waccamaw, N.C.
Farming for H. B. Short, and Traveling Salesman, Acme Manufacturing Company of Wilmington, N. C.		
ERVIN BLACKENEY STACK,	B.E. 1905,	Monroe, N. C.
Member of firm, J. E. Stack & Co.		
TALMAGE HOLT STAFFORD,	B.S. 1912,	Mayaguez, Porto Rico.
Assistant in Soils and Agronomy, College of Agriculture, University of Porto Rico.		
CHARLES BURT STAINBACK,	B.E. 1910,	East Pittsburg, Pa.
Sales Department, Westinghouse Electric and Manufacturing Co.		
EDWARD ROE STAMPS,	B.E. 1903,	Macon, Ga.
Superintendent, F. S. Royster Guano Co.		
HARRIS INGRAM STANBACK,	B.E. 1910,	Newark, N. J.
In Charge of Quality, General Electric Lamp Works.		
NUMA REID STANSEL,	B.S. 1898,	El Paso, Tex.
E.E. 1901. Local Manager Southwest General Electric Co.		
THOMAS BARNES STANSEL,	B.S. 1910,	Ithaca, N. Y.
Graduate Student, Cornell University.		
CLARENCE ALEXANDER STEDMAN,	B.S. 1912,	Richmond, Va.
Chemist, Virginia-Carolina Chemical Co.		
ALEXIS PRESTON STEELE,	B.S. 1899,	Statesville, N. C.
Mechanical Engineer, Firm of J. C. Steele & Sons.		
JOHN BROWN STEELE,	B.S. 1913,	Blountsville, Ala.
Teacher of Agriculture, Alabama State School.		
HUGH STUART STEELE,	B.E. 1909,	Miles City, Mont.
Drainage Engineer, Chicago, Milwaukee and St. Paul Railway.		
LUCIUS ESEK STEERE, JR.,	B.E. 1911,	St. Louis, Mo.
Engineer, Wagner Electric Manufacturing Co.		
SAMUEL FATIO STEPHENS,	B.E. 1909,	Norfolk, Va.
Draftsman.		
NEEDHAM BRYAN STEVENS,	B.S. 1912,	Goldsboro, N. C., R.4.
Farming.		
WILLIAM BEEVER STOVER,	B.E. 1913,	Wilkinsburg, Pa.
Graduate Student, Westinghouse Electric and Manufacturing Co.		

† Deceased.

Name.	*Degree.*	*Address.*
CHARLIE BERRYHILL STOWE,	B.S. 1913,	Charlotte, N. C., R. 4.
Farmer.		
GEORGE YATES STRADLEY,	B.E. 1903,	Roanoke, Va.
Roanoke Bridge Co., Inc.		
JOHN SNIPES STROUD,	B.E. 1908,	Meridian, Miss.
Superintendent Lauderdale Cotton Mills.		
WALTER STEPHEN STURGILL,	B.E. 1901,	West Point, N. Y.
First Lieutenant of Field Artillery, U. S. Army. Assistant Instructor of Tactics, U. S. Military Academy.		
WILLIAM CLARK STRYON,	B.E. 1910,	Newport News, Va.
Draftsman, Newport News Shipbuilding and Dry Dock Co. Home Address, Washington, N. C.		
TEISAKU SHUGISHITA,*	B.S. 1898,	Japan.
BEVERLY NATHANIEL SULLIVAN,	B.S. 1901,	Winston- Salem, N. C.
Superintendent Winston-Salem Gas Co.		
THOMAS BRYAN SUMMERLIN,	B.E. 1910,	Calypso, N. C.
Albritton & Summerlin, General Merchants.		
HENRY NEWBOLD SUMNER,	B.E. 1909,	Fort Dade, Fla.
Lieutenant Coast Artillery Corps, U. S. Army.		
LLOYD HURST SWINDELL,	B.E. 1911,	Raleigh, N. C.
Southern Bell Telephone and Telegraph Co.		
STANTON BANKS SYKES,	B.E. 1913,	Chicago, Ill.
Student Course, Western Electric Co.		
VANCE SYKES,	B.E. 1907,	Portsmouth, Va.
Assistant Engineer, Seaboard Air Line Railway.		
GEORGE FREDERICK SYME,	B.S. 1898,	Raleigh, N. C.
C.E. 1907. Locating Engineer, Raleigh, Charlotte and Southern Railway.		
WILLIAM ANDERSON SYME,†	B.S. 1899,	Raleigh, N. C.
M.S. 1903. Ph.D., Johns Hopkins University.		
FREDDIE JACKSON TALTON,	B.Agr. 1906,	Pikeville, N. C., R. 2.
Farmer.		
CLAUDE STRATON TATE,	B.E. 1909,	Littleton, N. C.
Secretary, Tate Machinery and Supply Co.		
ARTHUR WILLIS TAYLOR,	B.E. 1912,	Raleigh, N. C.
Special Course with Carolina Power and Light Co.		
CULVER MURAT TAYLOR,	B.E. 1912,	Syracuse, N. Y.
Niagara, Lockport and Ontario Power Co.		
HERBERT LEE TAYLOR,	B.E. 1912,	Baltimore, Md.
Special Apprentice, B. and O. R. R.		
WALTER CLYBURN TAYLOR,	B.E. 1913,	Fall River, Mass.
Resident Engineer for H. C. Raynes, Inc., Consulting Engineers of Boston, Mass.		

* Not heard from this year.
† Deceased.

Name.	*Degree.*	*Address.*
JAMES CLARENCE TEMPLE,	B.S. 1904,	Experiment, Ga.
M.S. 1908. Bacteriologist, Georgia Experiment Station.		
MALVERN HILL TERRELL,	B.E. 1909,	Atlanta, Ga.
Chief Engineer, U. S. Post Office and Courthouse.		
FRANK MARTIN THOMPSON,	B.E. 1910,	Wake Forest, N. C.
Athletic Coach, Wake Forest College. Home Address, Raleigh, N. C.		
GEORGE LOGAN THOMPSON,	B.E. 1912,	Lynn, Mass.
Electrician, General Electric Co.		
JOHN SAM THOMPSON,	B.S. 1912,	Woodville, N. C.
Farmer.		
THOMAS HAMPTON THOMPSON,	B.E. 1910,	Greensboro, N. C.
Southern Railway.		
BUXTON WILLIAMS THORNE,†	B.E. 1893,	Holly Springs, Miss.
THOMAS WHITMELL THORNE,	B.E. 1911,	Atlanta, Ga.
Salesman, National Tube Co.		
LUTHER RUSSELL TILLETT,	B.E. 1907,	Zamboanga, P. I.
Civil Engineer.		
RICHARD HENRY TILLMAN,	B.E. 1906,	Baltimore, Md.
Industrial Engineer, Consolidated Gas, Electric Light and Power Co.		
WILLIAM SIDNEY TOMLINSON,	B.E. 1906,	Columbia, S. C.
Civil Engineer, Shand Engineering Co.		
JAMES EDWIN TOOMER,	B.S. 1909,	Copper Hill, Tenn.
Assistant Chemist, Tennessee Copper Co.		
CHARLES EDWARD TROTTER,†	B.S. 1903,	Franklin, N. C.
M.D., Johns Hopkins University.		
GEORGE REID TROTTER,	B.E. 1912,	Atlanta, Ga.
Construction Foreman, General Electric Co.		
WILLIAM BROOKS TRUITT,	B.E. 1907,	Greensboro, N. C.
Superintendent Steel Department, Wysong-Miles Co.		
FRED GOODE TUCKER,	B.E. 1911,	Madison, Wis.
Wisconsin State Highway Commission.		
ISAAC NORRIS TULL,	B.E. 1910,	Cleveland, Ohio.
Construction Foreman, General Electric Co.		
REID TULL,	B.E. 1906,	Spartanburg, S. C.
City Engineer.		
JOHN EDWIN TURLINGTON,	B.Agr. 1907,	Vanceboro, N. C.
M.S. and Ph.D., Cornell University. Superintendent Craven County Farm-life School.		
JOSEPH PLATT TURNER,	B.E. 1902,	Leaksville, N. C.
Owner Twin City Supply Co.		
WILLIAM HARRISON TURNER,	B.E. 1893,	Winston-Salem, N. C.
Wholesale Mill Feed, Flour, Hay and Grain, and Manufacturer of Poultry Feed.		

† Deceased.

Name.	*Degree.*	*Address.*
JACKSON CORPENING TUTTLE,	B.E. 1906,	Baltimore, Md.
Industrial Power Department, Consolidated Gas, Electric Light and Power Co.		
ROBERT PEELE UZZELL,	B.Agr. 1906,	Goldsboro, N. C.
Farmer.		
PETER VALAER, JR.,	B.S. 1906,	Washington, D. C.
M.S. 1913, George Washington University. Assistant Chemist, Bureau Internal Revenue.		
LILLIAN LEE VAUGHAN,	B.E. 1906,	West Raleigh, N. C.
M.E. 1909. M.E. 1911, Columbia University. Instructor in Mechanical Engineering, N. C. College of Agriculture and Mechanic Arts.		
SOLOMON ALEXANDER VEST,	B.S. 1900 (Chem.),	Mount Pleasant, Tenn.
B.Agr. 1901. Secretary and Treasurer, The Smith Laboratory.		
SYLVESTER MURRAY VIELE,	B.E. 1905,	Altoona, Pa.
Pennsylvania Railroad Co.		
JOHN LAWRENCE VON GLAHN,	B.E. 1908,	Baltimore, Md.
Elkan-Tufts Construction Co.		
EDWIN THOMAS WADSWORTH,	B.E. 1911,	Erie, Pa.
Student Engineer, General Electric Co.		
ROSCOE MARVIN WAGSTAFF,	B.E. 1900,	Norfolk, Va.
Marine Engine and Boiler Draftsman, Machinery Division, U. S. Navy Yard.		
JOSEPH KENDALL WAITT,	B.E. 1904,	Mulberry, Fla.
Resident Engineer, Tampa and Gulf Coast Railroad.		
WALTER JENNINGS WALKER,*	B.E. 1905,	Schenectady, N. Y.
General Electric Co. Home Address, Winston-Salem, N. C.		
STEVEN DOCKERY WALL,†	B.E. 1905,	Rockingham, N. C.
CHARLES EMMETTE WALTON,	B.E. 1910,	Ampere, N. J.
Engineering Department, Crocker-Wheeler Co.		
BENJAMIN FRANKLIN WALTON,	B.S. 1894,	Raleigh, N. C., R. 1.
Farmer.		
EDMUND FARRIS WARD,	B.Agr. 1907,	Smithfield, N. C.
Abell & Ward, Lawyers.		
HUGH WARE,	B.S. 1899,	Kings Mountain, N.C.
Farmer.		
CHARLES AUGUSTUS WATSON,†	B.S. 1901,	Raleigh, N. C.
JAMES HUNTER WATSON,	B.S. 1911,	Raleigh, N. C.
Agent Atlantic Life Insurance Co., of Richmond, Va.		
JORDAN LEA WATSON,†	B.S. 1897,	Atlanta, Ga.
M.E., 1899.		
WALTER WELLINGTON WATT, JR.,	B.E. 1905,	Charlotte, N. C.
Engineer and Salesman, Fred H. White, Complete Mill Equipment.		
LINDSAY MARADE WEAVER,	B.E. 1907,	Lexington, N. C.
Dacotah Cotton Mills, Inc.		

* Not heard from this year.
† Deceased.

Name.	*Degree.*	*Address.*
MARION EMERSON WEEKS,	B.E. 1904,	Washington, D. C.
Draftsman, Signal Corps, U. S. Army.		
CLEVELAND DOUGLAS WELCH,	B.E. 1902,	Mayesworth, N. C.
Superintendent, Mayes Manufacturing Co.		
HOWARD WALDO WELLES, JR.,	B.E. 1910,	Philadelphia, Pa.
Engineering Office, Commercial Truck Company of America.		
JOHN JACKSON WELLS,	B.E. 1907,	Rocky Mount, N. C.
Civil Engineer.		
ALBERT CLINTON WHARTON, JR.,	B.S. 1904,	Clemmons, N. C.
Farmer, Live Stock.		
FRED BARNET WHEELER,	B.E. 1912,	West Raleigh, N. C.
Instructor, North Carolina College of Agriculture and Mechanic Arts.		
DAVID LYNDON WHITE,	B.Agr. 1907,	Charlotte, N. C., R. 9.
Superintendent Sulby Lodge Farm.		
JONATHAN WINBORNE WHITE,	B.S. 1903,	State College, Pa.
M.S. 1912, University of Illinois. Associate Professor in Agronomy, Pennsylvania State College.		
ROYALL EDWARD WHITE,*	B.E. 1908,	Indianapolis, Ind.
Assistant Manager, Mutual Film Corporation.		
CECIL BERNARD WHITEHURST,	B.E. 1907,	Richmond, Va.
Power Apparatus Specialist, Western Electric Co.		
JOSEPH SLAUGHTER WHITEHURST,	B.E. 1909,	Elizabeth City, N. C.
Civil Engineer, Norfolk Southern Railway.		
EDWIN SEYMORE WHITING,†	B.E. 1903,	Hamlet, N. C.
GAITHER HALL WHITING,†	B.S. 1900,	Raleigh, N. C.
LEVI ROMULUS WHITTED,	B.S. 1896,	Washington, D. C.
C.E. 1897. Superintendent of Construction, U. S. Public Buildings, With U. S. Treasury Department.		
ARCHIE CARRAWAY WILKINSON,	B.E. 1905,	Portsmouth, Va.
Civil Engineer, Seaboard Air Line Railway.		
CHARLES BURGESS WILLIAMS,	B.S. 1893,	West Raleigh, N. C.
M.S. 1896. Vice-Director and Chief of Division of Agronomy, N. C. Agricultural Experiment Station.		
CLAUDE B. WILLIAMS,	B.S. 1899,	Elizabeth City, N. C.
Physician.		
HENRY LLOYD WILLIAMS,	B.S. 1896,	Cofield, N. C.
General Manager Mills, Cofield Manufacturing Co.		
JOHN C. WILLIAMS,	B.E. 1908,	Pensacola, Fla.
Gulf, Florida and Alabama R. R., Pensacola, Fla.		
JAMES HARLEY WILLIAMS,	B.E. 1906,	Chattanooga, Tenn.
B.A.S., Association College, 1910.		

* Not heard from this year.
† Deceased.

Name.	*Degree.*	*Address.*
ALVIN CHESLEY WILSON,	B.E. 1913,	Pittsfield, Mass.
Student Testman, General Electric Co. of Schenectady, N. Y.		
ARTHUR JOHN WILSON,	B.S. 1907,	Chattanooga, Tenn.
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